



FRIDAY, AUGUST 3, 1894.

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Contributions.

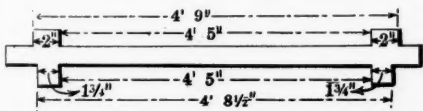
The M. C. B. Guard Rail and Wheel Gage.

Central Railroad & Banking Co., of Georgia.
MACON, July 25, 1894.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The guard rail gage, fig 23, as proposed by the Committee of the Master Car Builders' Association, will very likely be adopted through the letter ballot to be opened August 14th.

The dimensions as given are correct when applied to a standard track of 4 ft. 8½ in. For a 4 ft. 9 in. track, however, the gage may lead some people into error, as has been the case where the distance, 1½ in. between main and wing rail has been adopted instead of the real working distance of 4 ft. 5 in. over all, of wing and guard on 4 ft. 9 in. tracks. In such case the distance over all of guard rail and wing rail becomes 4 ft. 5½ in. and the wheels as now mounted being from 4 ft. 5 in. to 4 ft. 5½ in. between flanges many of them can get over the frog only by bending the axle. The usefulness of the gage would no doubt be much increased as an instrument of instruction if it embodied the distance between main rail and guard and wing rails for 4 ft. 8½ in. and 4 ft. 9 in. track, thus;



These conditions were thoroughly considered at the time of the change of gage from 5 ft. to 4 ft. 9 in. in 1886, by a committee composed of the following gentlemen: T. D. Kline, Chairman; Reuben Wells, Wm. Kenyon, J. F. Divine, W. J. Newman, Jas. Meehan, Jno. S. Cook, R. D. Wade, J. E. Warswick, G. M. D. Riley, G. H. Branling, W. H. Thomas, S. B. Haupt and G. W. Gates. The committee was provided with full size adjustable models of track, frog and wheel section, and after considering the relative positions of wheels and track under the various conditions of the service they recommended:

1st. That the wheels should be mounted not less than 4 ft. 5 in. between flanges.

2d. That the distance over all of guard rail and wing rail be not more than 4 ft. 5 in.

3rd. That the distance between main line and guard or wing rail be not less than 2 in.

The discrepancy of clearance mentioned has been felt very seriously on several occasions, and we deem the matter of sufficient importance to bring it before those interested, through your columns.

F. H. MCGEE, M. M.,
S. A. CHARPIOT, C. D.

The Manning Rail.

PHILADELPHIA, July 24, 1894.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Noting the comments made in your last issue in regard to the Manning rail, I wish to state that I have noted in my own experience many things that lead me to generally concur in Mr. Manning's replies to your observations.

With very tortuous alignment and a heavy traffic, the flange wear is excessive. I have known 67-lb. rail on a 10-degree curve, approximately level grade, to cut to the angle bar in five years, with a traffic of about 3,000,000 net tons per annum. This was a fair rail, neither very hard nor very soft.

The curve I quote had six inches elevation, and was put up on cinder ballast. The bulk of the freight movement, which constituted about 95 per cent. of the total movement, was at the rate of 18 miles an hour.

It would seem that Mr. Manning's rail may have a limited application in mountainous districts with sharp curvature and heavy traffic, and may be a help to the

maintenance solution under such conditions. It at least merits a trial; *experientia docet*. It is to be hoped a trial under careful observation may be had.

The outside rail is frequently so worn that when changed to the inside it affords but a small surface for traction effect, where such surface is of more importance than at the outside of the curve. After changing rails from side to side recently, I noticed freight train engines had some difficulty in getting over the newly-changed rail, slipping a great deal and materially checking in speed. This was owing, no doubt, largely to the decreased friction surface of the inside rail.

Railroad engineers would do well to investigate the question: "At what point is economy reached in allowing worn rail to remain in the track?" Is it simply a question of insurance against accident, or may there not be a question of economy of operation involved? In regard to your first question, as to "flange wear in general," I think some of our Pennsylvania Railroad friends might have some information, as they have very valuable statistics on many points relating to permanent way.

G. WHITEFIELD CHANCE, C. E.

Enlistment of Railroaders.

CHICAGO, July 26, 1894.

TO THE EDITOR OF THE RAILROAD GAZETTE:

After the recent strike, as after most others, when we inquire who were the most violent and offensive among the strikers, we find that they are almost without exception persons of foreign parentage, with little education; and most numerous, as well as most prominent among these, are the men of Irish origin born in the United States. The popular designation of them as "red-mouthed" indicates their vehement nature and speech. They are born fighters, and they are always rebels when there is a rebellion near at hand in which they can take a part. The only way to keep them out of the fray on the side of the rebels is to enlist them upon the side of authority beforehand. We all recognize their faithfulness as soldiers, and as policemen when they have joined the force; but as switchmen or brakemen they are the first to strike and the last to go back to work, so that many officials believe that no Irish should be hired in either of these employments upon a railroad. Probably, as things are now arranged, the fewer of these turbulent fellows a superintendent has to deal with, the more comfortable he will be, on the average. But it is a fact not to be ignored that when they are not on strike these are the very best men we have for such services, which require men of strength, activity and courage, and it is a great loss not to be able to avail of these virtues because they may be neutralized at intervals by a vicious tendency to disorder.

No doubt much of this tendency might be educated out of them, if there was time; as they rise from the ranks into better positions they generally discover that their bread is more likely to be buttered if they keep on the side of authority, and no one likes a thick spread of butter better than they do. Meanwhile, during this process of education, would it not be quite feasible to enlist them for a term of years at fixed wages, and promised promotion in deserving cases, as is done with soldiers and police? I would advise to have the railroad companies furnish the men with uniforms, with rations and with lodgings, except when they are at home; to give them officers, as soldiers and policemen have, with similar authority over them; and it should be arranged to try to punish them for offences by a tribunal as similar to a court-martial as may be. It seems probable that under some system of this kind this immense store of energy for work which now needs only control may be directed into a course where it will be of the greatest advantage to the roads and to society, instead of being a danger and a terror.

ARCHIMEDES STEPHENSON WATT.

A Pool that was Approved by the Court.

ST. LOUIS, July 24, 1894.

TO THE EDITOR OF THE RAILROAD GAZETTE:

For years many who should have known better have maintained that the pooling of railroad traffic earnings where the lines were competitive, was to be condemned as contrary to public policy; and in the Interstate Commerce act pooling is prohibited under penalty. Lately, however, there is evidence of a very considerable change of opinion all around, and it may be not inopportune to refer to occasions where pooling was held to be not void or voidable, and not contrary to public policy. The first of these cases I recall was the publication by Judge Cooley of a monograph on this subject, in which it was made quite clear that in itself pooling was in general to be commended, and proving quite conclusively that it was not against public policy. I think you published this at the time. But although Judge Cooley is a high authority this was unofficial, of course. More to the point is the following instance of a pool where the entire business pooled was interstate and the contract had the approval of the United States Court.

In the early part of 1877, the Illinois & St. Louis Bridge Co. (the Eads bridge), then in the hands of receivers, entered into a contract with the Wiggins Ferry Co., the general conditions of which contract were these:

Whereas, A mutually destructive competition has heretofore prevented the parties hereto from obtaining a reasonable compensation for the transportation of persons and property across the Mississippi river; and

Whereas, A continuance of this policy will result in irreparable injury to the respective parties hereto, and seriously impair their ability to render those services to the public for the performance of which they are organized; and

Whereas, A joint amicable method of conducting the transportation business upon the principle of ample facilities to the public, cheap and economical management, and best financial results to the parties hereto in the proportions as hereinafter provided, is earnestly and unreservedly desired and agreed to by the undersigned parties to this contract: therefore, this agreement provides,

Sec. 1. The business of the Bridge and Ferry, so far as the transportation of persons and property across the Mississippi River at St. Louis is concerned, shall be conducted as a joint interest, and the joint earnings shall hereafter be pooled and divided as hereinafter provided.

Sec. 2. Before any division of the joint net earnings shall take place, each of the respective parties may first appropriate, for the payment of its own proper working and current expenses, such amount as may be required to perform its transportation operations, and to maintain the property actually necessary for such transportation in good working order, . . . the business to be conducted with strict economy.

Sec. 3. Describes character of expenses allowable.

Sec. 5. Sets forth proportions to be allotted to each out of the net earnings.

Sec. 6. Prohibits diversion, solicitation, rate-cutting, rebates, etc.

Sec. 7. Provides for uniform charges on similar business.

Sec. 12. Provides for an auditor of the pool, who shall render statements, and on the 15th of each month draw on the party in excess in favor of the other, etc.

Sec. 15. The spirit and intent of this agreement is to promote the interest of both parties, and to put an end to a mutually destructive competition, and to maintain both bridge and ferry in a condition of prosperity and efficiency, so that in the event of an abrogation of this agreement the property of each party may be in as good a relative condition to resume business on its own account as it shall be at the date of said agreement, and the referees and umpire shall make their decisions with special reference to this end.

Sec. 16. This agreement shall take effect after having been submitted to the stockholders of the respective companies and ratified by them; and after this said contract shall have been submitted to the Circuit Court of the United States for the Eastern District of Missouri, or to a judge thereof, and be either approved by said Court or Judge, or the Receivers now in charge of said bridge be authorized to assent to and carry out the same. . . .

And on the Records of the Court, Case No. 551, May 28, 1877, appears the following entry:

This day came the said Receivers, by their Solicitors, and filed their petition, praying that an order be made authorizing them to carry out certain arrangements in said petition set forth; and therefore the Hon. Samuel Treat made the following order at Chambers: . . . That said Receivers, in the discharge of their duties under appointment from said Court, conform to the terms of said contract from and after May 31st, 1877, until otherwise ordered by said Court. . . .

I may state, incidentally, that the successor in ownership of the bridge property renewed the pool with the ferry, but it was a pool of gross, instead of net, earnings. It was kept up for several years, with a varying allowance of percentages, as agreed to from time to time.

This contract was legal and binding, and enforceable at law, in which respect it was different from the ordinary traffic agreement, which seems to be observed only so long as it suits the whim or the convenience of one or another of the parties to it not to break it; while the parties to it who may be injured appear to have no recourse, because they dare not take such a contract into Court. Let pooling contracts be legalized and parties thereto will strive to comply with agreed terms, or, it seems reasonable to suppose, they will peacefully seek a modification where a hardship or an injustice is apparent.

Then, too, if legalized, more care will be bestowed in the preparation of details and conditions, more caution taken before plunging into "wars." Careful attention to details tends to stability of rates, which, after all, is of as much importance as the rates themselves.

S. D. WEBSTER.

Passes—One Who Knows About Them.

A convention is now sitting at Albany for the very serious purpose of revising the Constitution of the State of New York, Mr. Joseph H. Choate being president of the convention. One of the amendments proposed prohibits railroad companies and other like corporations from giving free passes to public officers in any capacity. Concerning this amendment, Mr. J. T. Brooks, Second Vice-President of the Pennsylvania Company, addressed the following letter to Mr. Choate, which one day last week was laid before the convention:

"I have had a personal experience on the pass question for a quarter of a century, in connection with the lines of the Pennsylvania Railroad Company. For about eight years I have maintained, single-handed, a contest against the issue of free passes to persons occupying official positions in city, county, state and federal governments, the only exception to this statement being that I have continued to issue session passes to members of the Legislature, and, in rare instances, extending those passes after the close of the session to the end of the current year. I have seen the evils of the pass system grow from very small beginnings to what I regard as now a very great and deplorable proportion. There was a time when public officials were content to receive occasionally a trip pass for themselves. They have learned to ask for passes for themselves, for members of their families, and for political adherents and others. They not only ask for passes good over lines which are controlled by the officers to whom they apply, but they ask for passes over connecting lines to distant and remote parts of the country, good all seasons of the year. They not only ask for

trip passes for themselves and friends, but they ask for annual passes for themselves and friends, and no matter how many passes may be granted to a single individual, if a single request be refused, the enmity of that official is aroused and his vengeance exercised if he has an opportunity to do so.

"I have known a member of the Supreme Court of the United States to apply for free transportation, the money value of which in a single instance was between \$200 and \$300. Governors of states, United States senators, members of the House of Representatives, members of every department of the state government, from the Governor to the janitor, ask and expect to receive these favors.

"There is one state in the American Union whose Constitution contains a provision prohibiting persons in the service of that state from receiving passes. [Pennsylvania—EDITOR.] That Constitution in this respect is a dead letter in the state where it exists, and members of all departments of state, including therein nearly all members of the Supreme Court and of inferior courts, receive and expect, and even ask for, passes. A constitutional provision on this subject should be broad enough to make it a misdemeanor for any person elected or appointed to any position in the service of the public to ask or receive for himself or any other person free transportation. Within the last few years blackmailing legislators have been introducing bills for the taxation of sleeping-car companies, express companies and telegraph companies. The result is that passes are being issued by these various organizations in greater or less number, and telegraph passes can now be found in the pockets of nearly all members of the Legislature in all the important states."

The Dean System of Compound Locomotives.

In the *Railroad Gazette* of Nov. 25, 1892, there were illustrated the distinctive features of the system of compounding locomotives devised by Mr. P. W. Dean. Since that time some of the parts have been considerably modified in form, though still retaining the original principles.

One of the more important of these changes has been in the location of the intercepting valve, which, in the early designs was placed in the smoke-box, the converting valve being located upon the high pressure steam chest. In a later design, the intercepting and converting valves were combined and both placed upon the high pressure steam chest, the general action and construction of the valves remaining the same as before. This construction is still

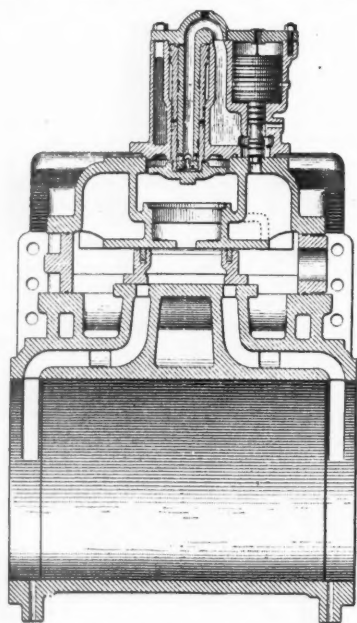


Fig. 1—Dean's Starting Valve, Old Form.

adhered to, though Mr. Dean has recently made a change in the converting valve which somewhat quickens the action of the parts in starting.

Fig. 1 shows a longitudinal section through a high pressure cylinder and steam chest fitted with the earlier form, and figs. 2 and 3 show in section and plan the later form of combined converting and intercepting valves.

Referring to fig. 1 it will be observed that the high pressure slide valve is open at the top and that the exhaust, instead of pressing out through a port in the valve seat, passes up through the balance plates and into a cavity in the top of the steam chest. From this cavity steam is conducted to the main body of the receiver. The intercepting valve is directly above the opening in the balance plate and serves to interrupt or shut off the communication between the high pressure exhaust and the receiver when desired. The converting valve is placed at the side of the intercepting valve and controls the flow of high pressure steam from the steam chest to the inside of the intercepting valve.

In fig. 2, A is a passage leading from the steam chest to the converting valve, and B a passage leading from the converting valve to the inside of the intercepting valve. E is an annular space around the outside of the stem of the intercepting valve and is always supplied with steam at boiler pressure through an independent pipe, thus holding the valve normally in the position shown.

The cavity C beneath the converting valve is in connection with the exhaust passage of the high pressure cylinder, so that the normal position of this valve also is as shown in the illustration. With the engine standing still and the throttle closed, the converting valve will drop to its lower position by its own weight, thus opening the passages between the high pressure steam chest and the intercepting valve. When the throttle is opened steam will pass to the inside of the intercepting valve and force it downward against the pressure in the annular space E, closing the passage from the high pressure exhaust to the receiver, and admitting steam to the receiver through the small ports in the bottom of the intercepting valve.

With the first exhaust from the high pressure cylinder the piston of the converting valve is forced upward, thus cutting off the supply of steam to the intercepting valve and exhausting the steam contained in the body of the

Two More Tie Plates.

The engravings show two tie plates that have been recently brought out. Fig. 1 is the Columbian tie plate

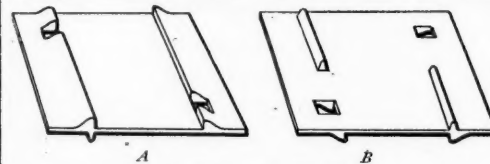


Fig. 1—Columbian Tie Plate.

controlled by Messrs. Servis & Bartlett, of Toledo, O. A is a top view and B a bottom view. It will be observed that the top is provided with two shoulders to prevent

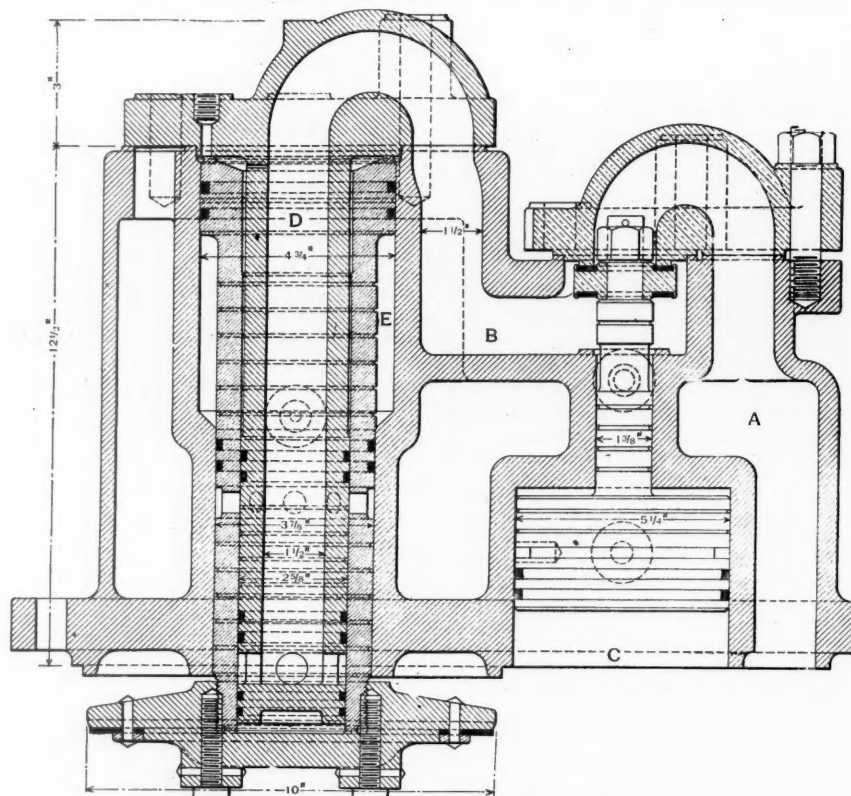


Fig. 2—Dean's Starting Valve, New Form.

valve through a port opened by the annular groove on the stem of the converting valve, thus permitting the steam in the annular space E to raise the intercepting valve and allow the high pressure exhaust to pass into the receiver. It will be seen that the device is entirely automatic and not under the control of the engineer. Mr. Dean has, however, perfected a simple attachment by which an en-

sidewise motion of the rail on the plate. The flanges entering the tie, shown in the bottom view, are placed transversely of the tie, instead of longitudinally as in the well-known Servis plate. It is claimed that there is a considerable advantage in putting these bottom flanges as shown; that is, staggering them, as thus the fibers of the tie are not cut clear across and a block is not cut out of

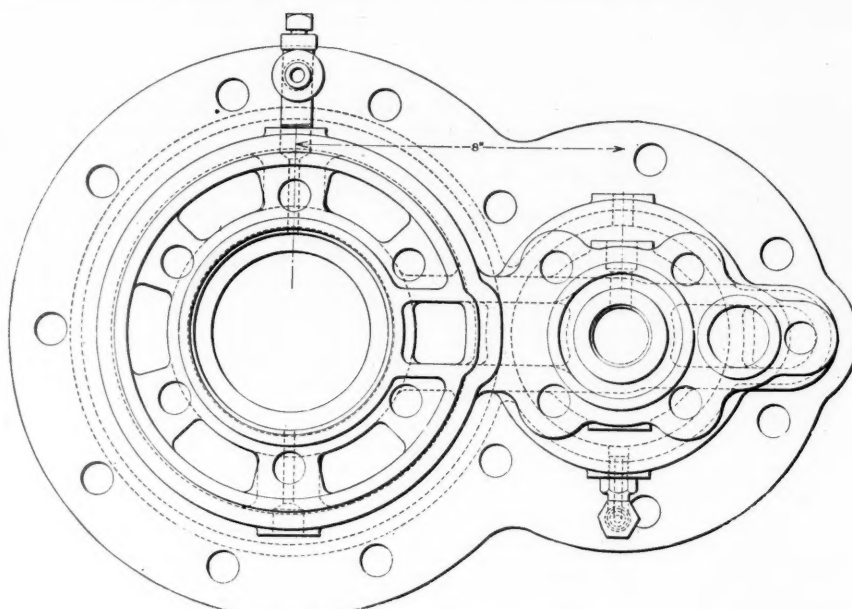


Fig. 3—Dean's Starting Valve, New Form.

gine may be made to work automatically or run as a simple engine as long as desired, the exhaust from the high pressure cylinder passing out through a separate exhaust to the stack. The manner of its working is regulated by means of a simple plug cork placed within reach of the engineer.

The converting valve just described varies from that previously used in being inverted. With the present construction the valve of an engine standing still will be open, while the previous valve remained closed until acted upon by the incoming high pressure steam,

the top of the tie, as is the case where the flanges extend all the way across.

Fig. 2 shows the Wolhaupter tie plate in which C is a bottom view and D a top view. This tie plate has one shoulder on the top; and on the bottom are several flanges placed longitudinally of the tie, but these flanges are provided also with side spurs as appears in the bottom plan C. It is claimed that this design will have all the advantages of the Servis plate and some others; that is, it has the shoulder to resist outward thrust and the multiplication of flanges on the bottom, and providing them with

side spurs will prevent movement of the plate on the tie. These spurs, however, are not essential, as the patentee

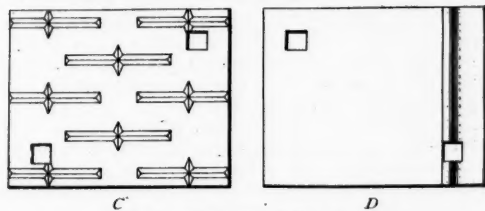


Fig. 2.—Wolhaupter Tie Plate.

proposes to make the plate with or without them. This device is patented by Mr. B. F. Wolhaupter, of Chicago.

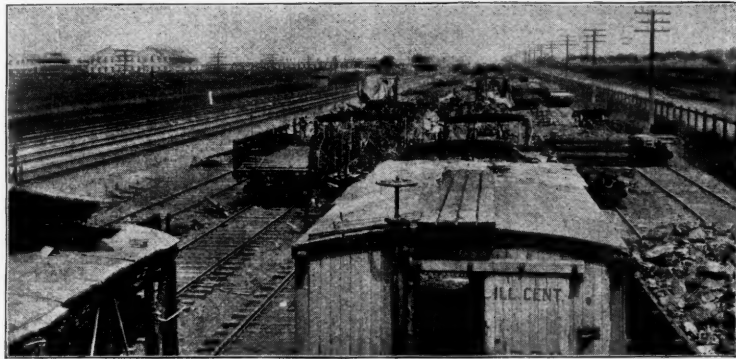
Photographs of Burned Cars at Chicago.

We present herewith a half dozen photographs sent to us by Chief Engineer Wallace, of the Illinois Central, which give a description, much better than can be framed

and to maintain the plant on each train in good order without expert assistance; it must also be so simple and at the same time so durable that mechanics of ordinary ability can be utilized to make the few repairs it will require; its cost, therefore, must be reasonable as compared with other methods of lighting and the character of the trains on which it is to be used. From the facts brought forward in this paper it will be conceded that all of these requirements are filled by the English system of taking power from the car axle. It is, therefore, confidentially expected that the well known ingenuity of our American engineers and inventors will be found sufficient to overcome the obstacles that now prevent us from utilizing in the same way the motion of the trains on our roads."

That this confidence has been realized to the fullest extent, is, I believe, demonstrated in the system recently brought out by Lieut. I. N. Lewis, of the U. S. Army, and covered very fully by the patents recently issued to him. In this system are combined a dynamo fixed on the car truck itself and belted to the car axle, with flexible connections charging a storage battery of 12 cells carried under the car, and at the same time, if necessary, supplying current for the lamps in the car. The results of the trials that have been in progress for the past four months on the business car of General Manager Stevens, of the C.

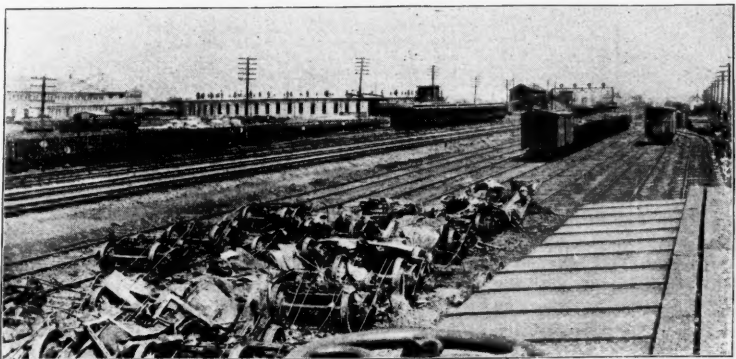
any of the auxiliary regulating devices heretofore necessary in plants of the English type in order to obtain constant E. M. F. regardless of the varying speed of the train. This Lieut. Lewis has accomplished by utilizing the compound principle in the winding of the field coils. One of the coils being energized with current from the storage battery—the circuit being open until closed by a ball governor switch on one end of the armature shaft rotating vertically and operating to close the circuit at a predetermined speed, thus preventing waste of the current when the car is standing still. While the compound or series coil of the fields, instead of being wound in the usual way to maintain the strength of the field magnetism, is reversed or wound differentially, so that instead of augmenting the field magnetism as the speed of the car rises, thus raising the voltage, it acts precisely in the opposite manner, and demagnetizes or weakens the field as the car speed increases, keeping the voltage down notwithstanding the increased speed, so that the potential does not exceed the maximum of 25 volts, while the current output may rise from 1 to 50 amperes, depending on the speed of the car. On the dynamo is a slate block to which all of



A



D



B



E



C



F

RUINS OF BURNED CARS ON ILLINOIS CENTRAL RAILROAD AT BURNSIDE.

in words, of some of the havoc wrought by the mob during the recent strike. View A shows cars burned on side tracks between Burnside Crossing and 104th street. View B was taken near the same place and shows how near the fire was to the shops of the company. View C is looking southeast toward Pullman. View D is taken at closer range and gives some idea of the work required to clear the tracks. View E is similar to the last, looking northeast. F shows how many tracks were obstructed by the fire.

The Electric Lighting of Railroad Trains.

BY M. B. LEONARD, M. AM. SOC. ELECTRICAL ENGINEERS.
(Continued from page 519.)

In the paper that the writer had the pleasure of presenting at the Niagara Falls meeting of your Association in 1890, he concluded as follows:

"The electric lighting of trains has been hitherto considered very much as a luxury, but its superiority has been demonstrated in so many ways that it is now regarded almost as a necessity. Before it can be generally adopted, it must be practicable to light the cars on a large scale,

& O., indicate that the problem of cheap electric lighting for passenger trains has been fully and satisfactorily solved by this method of operation.

In the Lewis system, a bipolar dynamo wound for a maximum output of 25 volts and 50 amperes, with one set of carbon brushes in rectangular holders fixed at right angles to the commutator, and always in contact with it, using graphite bearings for the armature shaft to do away with the need of oil, and iron clad, or fitted with a close iron cover protecting commutator, fields and brushes—is bolted on to the bolster or truck beam, and connected by a raw hide belt 3 in. wide to a 20 in. pulley on the axle, the armature shaft carrying a 7½ in. pulley. To keep the belt tight on the armature pulley because of the short distance between centers, a pair of spring idlers is used, consisting of two flanged pulleys 4½ inches in diameter, over which the belt runs, revolving on graphite bearings and held together by a spiral spring on each side, with adjustable nuts.

The distinguishing feature of this system is the way in which the dynamo is wound, by which the machine is made self-regulating for all speeds, and a constant potential at the battery terminals obtained without employing

the dynamo wire terminals are run, and to which is also fitted a movable slate cap with contact points terminating in a flexible cable of wires for the purpose of carrying the current generated by the dynamo, etc., to the storage batteries, lamps, automatic pole changer and to cut-out switch on the car, so that in the event of the car truck having to be moved from the car for any purpose, it is only necessary to turn a single screw to disconnect the movable cap and dynamo terminal blocking, in order to take out the truck without interfering with the electrical apparatus.

Next to the dynamo, the most important features of this system are the pole changer that automatically insures a current of constant polarity passing into the storage battery or lamps regardless of the direction in which the car is moving, and the cut-out switch that opens automatically the charging circuit between the dynamo and storage battery when the speed of the car falls below a certain limit, and thereby prevents the battery from discharging itself through the dynamo. Another function of this apparatus is to automatically close the charging circuit as soon as the speed of the car is high enough to generate the proper E. M. F. for charging. These two devices are placed side by side in a slate backed box 2½ in. deep, 12 in. long by 10 in.

Valve Gear for Independent Exhaust and Steam Valve.

The illustrations with this show a valve gear for locomotives having independent exhaust and steam valves. This gear has been referred to before in the *Railroad Gazette*, but owing to the fact that some important changes have been made recently and a considerable

permit steam to enter when the holes register with the bottom ports of the valve seat. In this way the valve has no more pressure upon it than that corresponding to the parts in contact with the valve seat, and this is believed to reduce the friction about 50 per cent. The advance of the exhaust valve is constant for all travels. It has been expected that in this way there would be a reduction of compression and a later escape of the exhaust. The

results obtained from this arrangement are said to be satisfactory.

The period of release was decreased by amounts ranging from 25 to 34 per cent. and that of compression was diminished by amounts from 20 to 29 per cent. The engine is said to be more economical since changed, but the real cause of the increased economy is not made clear.

Fig. 5 shows an arrangement applied to another engine

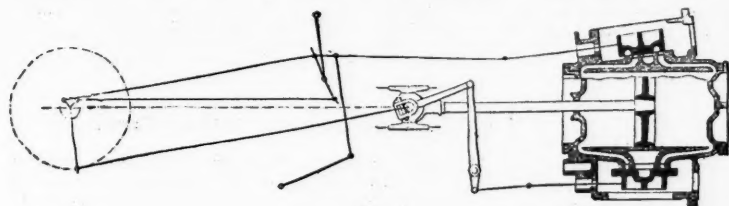


Fig. 1.

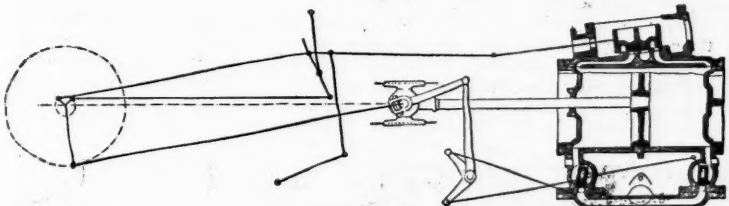


Fig. 2.

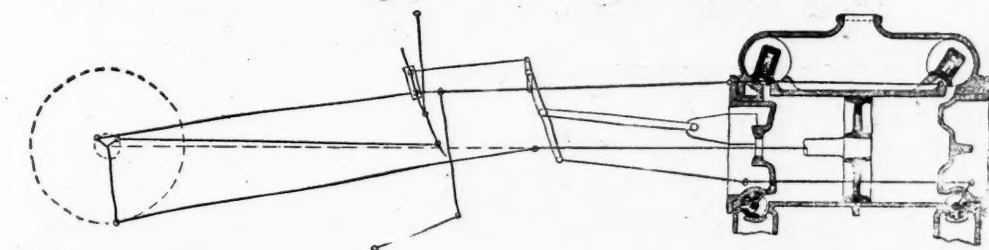


Fig. 5.

French Locomotives with Independent Exhaust.

number of engines are now being run with this gear in France, it has been considered worth while to show the general construction, and give some account of the value of the results obtained with it.

M. E. Polonceau, Chief Engineer of Motive Power and Material of the Compagnie d'Orleans, has been engaged

intention of the designers was to increase the work done by a given amount of steam; reduce the cylinder condensation by shortening the time of the exhaust and to increase the pressure during admission.

Fig. 2 represents a second application of these principles, the chief difference being that the exhaust

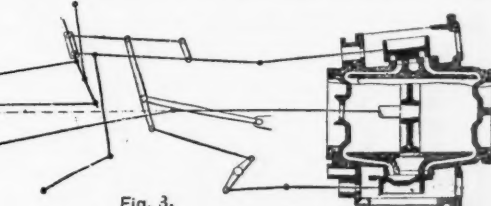


Fig. 3.

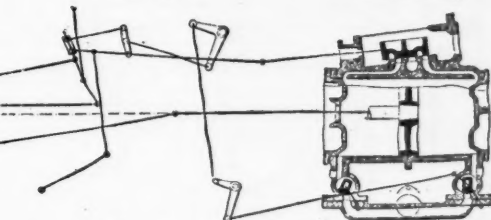
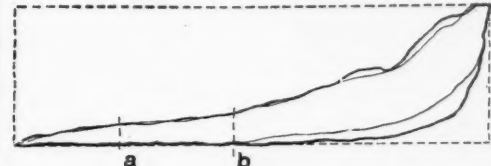


Fig. 4.



Figs. 16 and 17.

where new cylinders were used, and Figs. 6 to 9 show the type which has been finally adopted for passenger loco-

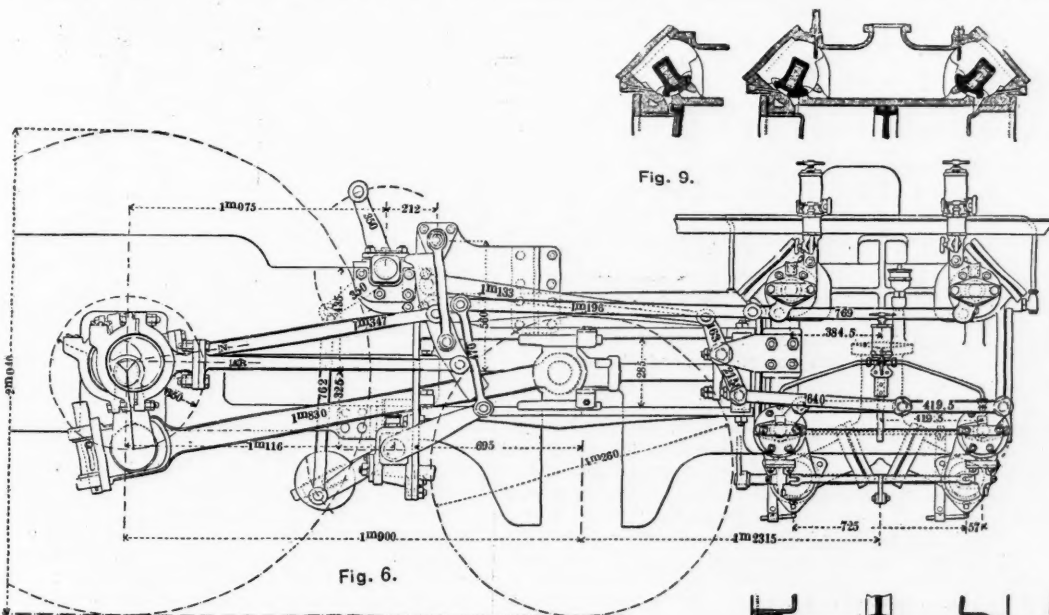


Fig. 6.

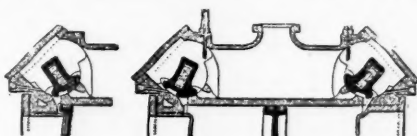


Fig. 9.

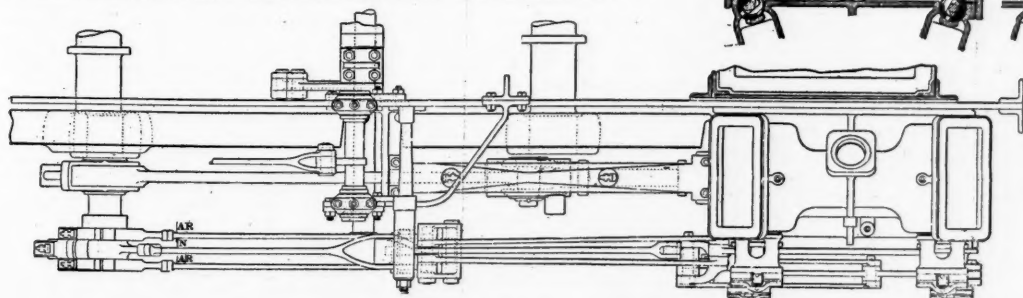


Fig. 7.

French Locomotives with Independent Exhaust.

in perfecting the distribution of steam in locomotives to compete with the compound principle. The independent exhaust first tried is shown in Fig. 1. It was built in 1887 from the designs proposed by Durant and Lencauchez. The object is to increase the useful effect of steam by delaying the exhaust and decreasing the compression. To balance the parts and to increase the effective area of the steam ports the valve seat is between the ports at each end of the cylinder and the clear space which is in communication with the steam chest. Two holes in the valves

valves are cylindrical and are placed at the end of the cylinders like the Corliss valves. Experiments with this type showed distinctly that compression has been a serious obstacle in locomotives for high speeds, and therefore a new arrangement was sought which would decrease the compression without giving an earlier escape to the exhaust. To this end the ordinary eccentrics and rods were used to control the valves of admission and exhaust, and the two designs shown in Figs. 1 and 2 have been transformed so that they are now like Figs. 3 and 4. The

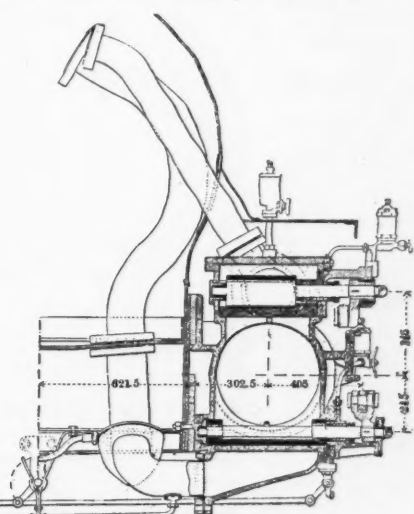


Fig. 8.

motives and which has been in service for about a year and a half. In these arrangements the exhaust valves are controlled by an intermediate arm attached to the cylinder. This has been done to prevent the vibrations which are produced at high velocities in the rods and arms of the design shown in Fig. 3.

In Fig. 5 each cylinder has 4 Corliss valves, two for admission and two for exhaust. With this the clearances at the end of the cylinders are $4\frac{1}{2}$ per cent., being about 2 per cent. less than is common on American locomotives. The specific claims made for this construction are:

The live steam valves are not cooled by the passage of exhaust steam at a lower temperature.

The steam ports are increased in size and the pressure is maintained better during admission.

The clearances of the steam passages being less and the compression less, more work is done by a given amount of steam.

The closing of the exhaust valves can be regulated so as to give any desired compression.

The valves being nearly balanced require but little power to move them.

The location of the exhaust valves at the bottom of the cylinders permits the ready escape of any water in the cylinder.

Figs. 16 and 17 give the comparative diagrams from two locomotives, one with the four valves and the other of the ordinary type of slide valve. The heavy lines show the

card from the new arrangement and the light lines from the ordinary link motion.

The new device with four valves has been applied to eleven high speed locomotives. It is said that there is very little wear of the valves and the joints. It would appear from the description given of this mechanism and the results of service that the designers appreciated that there are a greater number of joints in this valve motion, that it does not work well in

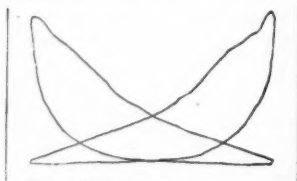


Fig. 18.

backing up, and that more oil is required to lubricate the machinery, but it is believed by them that these disadvantages are offset by the increased efficiency. We have not given a description of the mechanism in detail, as it is rather complicated, as can be seen from the illustrations, but it is believed that the general construction will be readily understood and that is about all that is necessary.

The most interesting part of this description is perhaps the indicator cards, Figs. 16 and 17. It will appear from

Fireless Locomotives for Street Railroads.

The rapid growth of the application of electricity and cable propulsion, and particularly electricity, to city railroads, has thrown into the background in recent years the discussion of special motors for such work, but there are still those who advocate compressed air motors, ammonia motors and various other machines that will do away with the necessity of generating steam as the motor travels over the road. In a recent issue of the *Zeitschrift* of the Austrian Engineers' & Architects' Society, Mr. Alfred Birk, an Austrian engineer, writes on the Vienna city railroad, and discusses the motive power of street railroads with special reference to the requirements of the Austrian capital and its suburbs.

Mr. Birk gives special prominence to the types of fireless locomotives which have been before the engineering world for a number of years past, and is of the opinion that the possibilities of at least one of them, the Honigmann soda locomotive (illustrated in the *Railroad Gazette*, July 3, 1885) is worthy of careful consideration. The other engine considered in the paper is Franco's superheated water locomotive. Both this and the Honigmann motor have often been described, and have been well-known for several years. Yet in view of the

and the boiler must be refilled with water heated up to the required temperature to commence the working cycle.

The first of Mr. Honigmann's locomotives was put to practical work in Germany ten years ago, and at about the same time a careful series of tests of the system was carried out by Professor Riedler, of Munich. These experiments gave favorable results, showing, even now, in the light of all the later developments in the motor line generally, that Mr. Honigmann's invention is useful from a practical point of view. Mr. Birk writes that one of the engines is again to be subjected to tests with special reference to its application to Vienna street railroad use.

Steam Roller for Puddling Earth.

For puddling the dam of the reservoir of Torcy-Neuf, in France, a novel steam roller has been successfully used, a description of which we abstract from the *Annales des Ponts et Chaussées*, July, 1893. In its design, the form of the rollers, which has been proved in France as the best, during a century, was preserved as much as possible. The old rollers were drawn by horses. Essential conditions were that the cost of the puddle made with a steam roller should be less or at least not more than that made

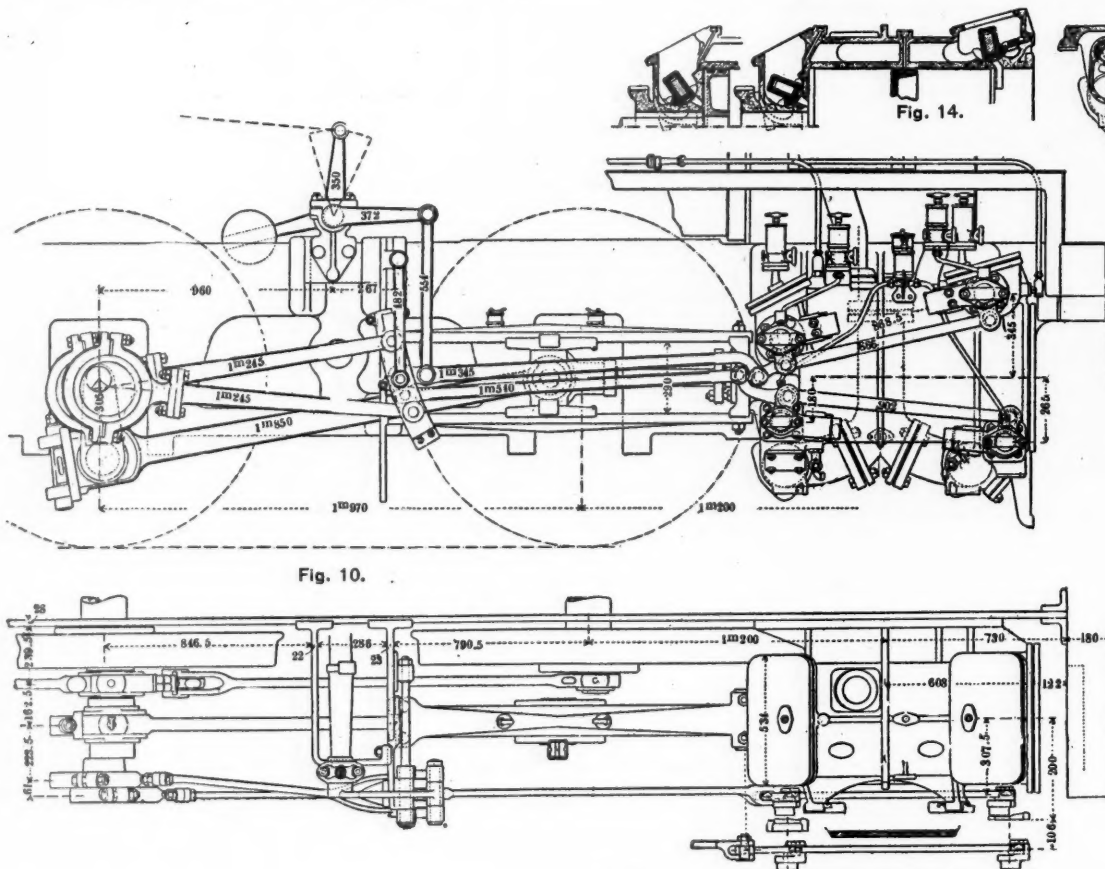


Fig. 10.

Fig. 11.

French Locomotives with Independent Exhaust.

an examination of these indicator cards that if they represent the action of the valve motion of French locomotives with a plain slide valve, French constructors are not conversant with American practice, otherwise they would have arrived at better results. Take for instance indicator cards Figs. 18 and 19, which were obtained from a good 17x24-inch engine such as is used on the Milwaukee, Lake Shore & Western. The superiority of these cards over those obtained from the French locomotive with its four Corliss valves is quite sufficient to show that in spite of the complication, the French constructors have not yet reached so good a steam distribution as is obtained here with the ordinary slide valves. The data of these cards are as follows: Fig. 18, boiler pressure 142, revolutions 288 per minute. Fig. 19, boiler pressure 143, revolutions 144 per minute. Cylinders 17x24. Diameter of drivers 63 1/2 inches.

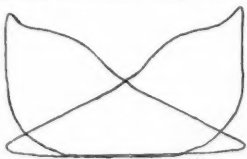


Fig. 19.

Union Station at Toronto.

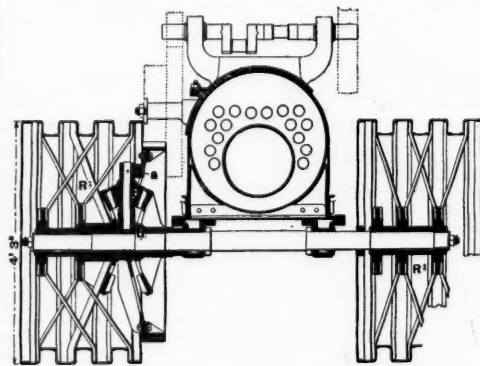
Mt. Edmund Wragge, local manager of the Trunk Line Railroad at Toronto, states that the work now in progress, of building the new Union station for the Canadian Pacific and Grand Trunk Railroads at Toronto, is not likely to be further delayed, all causes of disputes with the city government having been adjusted. He expects that the new station will be ready for use within a year. The contract now being carried out includes the construction of a new train shed south of the train shed of the present station, which will be continued in use for east bound trains made up at Toronto. The new train shed will be for through trains and for trains leaving Toronto for the West. The cost of the new station and improvements will be about \$750,000. The Grand Trunk and the Canadian Pacific are each to pay one-half of the interest on the cost of the work.

renewed attention which they appear to attract abroad, it may not be amiss to give briefly their essential features.

Little change seems to have been made in their design since they were first put into practical working shape. In Franco's engine there is a reservoir partly filled with water, which is heated by high pressure steam from a stationary boiler feed station. Connection with the stationary boiler is kept up until equilibrium is established, that is, until the pressure in the reservoir corresponds to that in the boiler. The stop valve between the two is then closed, and the engine is ready to start. The water in the reservoir is heated to a temperature corresponding to the pressure of the steam, and as this pressure is lowered by the drafts of the engine upon the steam supply, more steam is disengaged from the heated water, and a continuous supply is thus obtained, until the heat in the water is finally exhausted. Excessive radiation from the reservoir is prevented by a covering of non-conducting material. When on the road, the disengaging of steam from the hot water under pressure is regulated by a valve, open in proportion to the work to be done.

In the Honigmann locomotive there is also a reservoir of hot water and steam. This, however, is surrounded by a second reservoir, and the space between these two is filled with concentrated soda solution. The steam from the first reservoir, after having performed its ordinary duty in the engine cylinders, is exhausted into this soda solution, which readily absorbs it with the evolution of heat, and the heat, in turn, is transmitted back to the hot water reservoir, or boiler, helping in the renewed generation of steam. The greater the speed at which the engine works the more heat will be liberated. The limit of action sets in with want of strong caustic soda, which, by the continual absorption of the exhaust steam, finally becomes too diluted to take up any more. When the engine has thus exhausted itself, the soda solution has to be drawn off and concentrated again by evaporation,

in the old manner; further, that the roller was able to change its course easily, as it has to follow a very sinuous line in order to go over the puddle in every direction. The roller consists of a tubular horizontal boiler with an annular dome on top, through which the smokestack goes, of a motor with 2 cylinders and reverse gear, mounted on the boiler, of spur gearing, through which the motor turns the rollers, of a pair of rollers and a pair of truck wheels. The rollers have a diameter of 4 1/4 ft., and are 2 ft. 4 in. wide. The tire of each roller has 3 longitudinal square grooves, 4x4 in. The truck is pivoted and steered by the engineer through chains and gearing. The wheel base is 6 ft. The required great mobility of the engine is obtained by an ingenious mechanism, the principle of which is



Section Through Rollers.

illustrated by the accompanying cut. The motor actuates by intermediate gearing the spur wheel *a*, which runs loose on the axle of the rollers. It carries a level pinion

b turning on a shaft which is vertical to the axis of the spur wheel. The pinion gears into 2 bevel wheels, of which one is part of the roller *R*¹, the other *d* connected with the roller *R*². *R*¹ runs loose on the axle, whereas *d* and *R*² are firmly keyed to it. As long as the roller moves in a straight line, the axis of the front truck being under right angles to it, the resistances to turning of the two hind rollers are equal, and the motor turns them both with the same speed. If, for the sake of changing the direction, the front truck is turned to the left, for instance, the engine tries to pivot around the left roller *R*². The resistance of this roller to turning increases over that of the other one. The pinion *b* begins to roll off on the level wheel of *R*², making this stationary, and turning through the level wheel of *d* the roller *R*¹, with a speed double that of the motor.

Thus the engine turns easily within a radius of 8 ft., going at its full speed of 2½ to 3¼ miles an hour.

The saving in the cost of puddle, afforded by the steam roller, is considerable.

Aftermath of the Strike.

There have been several instances of violence during the past week growing out of the strike. In Chicago on the night of July 26, a mob attacked a boarding-house in which were 25 non-union employees of the Chicago & Eastern Illinois road. Two of the men in the house fired bullets into the crowd. In the yard of the Michigan Central at Kensington, on Saturday night a soldier shot an intruder who disobeyed his command to halt. In Danville, Ill., on Saturday night a locomotive engineer was killed in his cab by a shot from a pistol at a street crossing. An engineer was assaulted while walking in the street at Chicago on Thursday night. On Saturday morning a Chicago, Burlington & Quincy engine, running on the track of the Pittsburgh, Cincinnati, Chicago & St. Louis road in Chicago was lifted from the track and badly damaged by an explosion of dynamite. About 30 masked men misplaced a switch in St. Paul last Saturday about 1 A. M. and ran a freight train upon the side track. When the train crew got off they were stoned and one of them wounded.

At Ramsey, Ill., freight trains have been interfered with nearly every day and a marshal went there to arrest some of the men accused, but a mob drove him off. On the Southern Pacific in Nevada the strikers disabled a large number of engines by disconnecting the machinery. A heavy rainstorm the other day washed away some sand, disclosing 28 valve stems buried in the ground.

The United States Marshal at Denver was obliged to send out troops to Trinidad and other places on July 30 to guard railroad property. On July 29 the Northern Pacific applied to the United States military authorities in the State of Washington for troops to protect the line in the Coeur d'Alene region. Indiana state troops were ordered withdrawn from Hammond on July 30, but the local authorities remonstrated. In Chicago the business men at the stock yards have protested strongly against the withdrawal of troops at present.

The proceedings against Debs and his associates for contempt of court have been adjourned until Sept. 5, principally on account of the sickness of the Government Counsel. The proceedings under the bill filed on July 2 have been appealed and these also will suffer considerable delay. The defendants decided that they did not wish to remain in jail until September and accepted the offers of bail which they had before refused. Bonds were accepted in the sum of \$7,000 each for the four defendants, making a total of \$38,000 for the four under the indictments for conspiracy and contempt.

Two strikers have been imprisoned for 40 days at Chicago for contempt of court in interfering with business on the Atchison, Topka & Santa Fe, at Chillicothe, Ill. To others were discharged, the evidence not proving that they intimidated anybody. The cases of four stock yards strikers went over until July 31. A Santa Fe engineer arrested for contempt at Chicago, was discharged for lack of evidence. At Cheyenne, Wyo., four men have been imprisoned for short periods for intimidating or assaulting employees of the Union Pacific.

A few local branches of the American Railway Union at various points have declared the strike off. The Chicago & Alton was reported last week to be discharging large numbers of old men for the part they took in the strike. Some were discharged that took no part in the strike but failed to report for duty. It is said that this road has demanded a rigid individual contract from all men hired since the strike. A similar statement is published at Galveston, Tex., concerning the action of the Gulf, Colorado & Santa Fe. The Grand Master of the Brotherhood of Railway Trainmen has notified subordinate officers to enforce Rule No. 10, prohibiting sympathetic strikes. All members guilty under this rule must be expelled and any lodge failing to comply with the constitution in this respect is liable to have its charter revoked.

A fruit dealer of Baltimore has failed in consequence of the loss of perishable shipments sent West during the strike.

Notices of claims for damages have been sent by several railroads to the officials of the city of Chicago and of the County of Cook, for losses during the strike. S. B. Foster, Attorney for several roads, presented claims aggregating \$38,660. These are mostly from the roads which suffered least from mob violence, and it is intimated that much larger claims will soon be presented. Mr. Foster has also filed claims amounting to \$200,000 from shippers

of freight. The Pittsburg, Cincinnati, Chicago & St. Louis has presented a bill to the city of Chicago for \$449,691 and one for \$21,347, of the same kind, has been presented by the Pittsburg, Fort Wayne & Chicago.

TECHNICAL.

Manufacturing and Business.

James A. Pratt has been appointed a temporary receiver of the Electric Manufacturing & Gas Engine Co., of Greenbush, New York. This appointment was made in the suit begun by Attorney-General Hancock, of New York State, for a dissolution of the corporation which was formed in March, 1891. It is claimed that the business has been conducted at a loss for two years and that it now has an indebtedness of over \$47,000, of which \$35,000 is due to James A. Pratt for money advanced. A hearing on the application of the Attorney General will be held at Troy, N. Y., on Oct. 15, before W. W. Merrill.

The plant of Dilworth, Porter & Co., Limited, of Pittsburgh, manufacturers of railroad spikes, is being operated to about two-thirds its capacity.

The plant of the Pittsburgh Locomotive & Car Works, which was closed for two weeks in July for repairs, resumed operations on July 16. The new buildings for the erecting and carpenter shops now being built are expected to be completed by October 1.

The directors of the Rome Locomotive & Machine Works, of Rome, N. Y., have elected the following officers: President, Thomas H. Stryker; Vice-President, William B. Isham; Secretary and Treasurer, Edward Comstock. The work of rebuilding is progressing and the buildings will probably be completed in the fall.

At the annual meeting of the Ohio Steel Co., at Youngstown, Ohio, the following directors were elected: Gen. J. L. Botsford, L. E. Cochran, Henry Wick, M. C. Wick, J. B. Butler, Jr., E. L. Ford, E. L. Brown and James Parmelee. Henry Wick was elected President, J. G. Butler, Jr., Vice-President, and W. H. Baldwin Secretary.

At a recent meeting of the directors of the Paige Tube Co., of Warren, Ohio, C. B. McCrum was re-elected General Manager and Treasurer and J. T. Bray Secretary and Superintendent.

The Harlan & Hollingsworth Co., of Wilmington, Del., car and ship builders, will erect a pattern and molding shop 63 ft. x 254 ft. two stories high, of iron, to cost \$20,000, and a one-story frame blacksmith shop, 37 ft. x 150 ft. to cost \$3,000.

The 12,000 cars now building for the Lehigh Valley are to be equipped with Gould couplers. The Michigan-Peninsular Car Works are building 500 furniture cars for the Lake Shore & Michigan Southern which will also have Gould couplers.

The new plant of the Waterman Machine Tool Co., at Oakland, Me., was placed in full operation on August 1. The company has heretofore been located at Providence, R. I.

The shops of the E. W. Bliss Co., of Brooklyn, are running full time with 460 men and with a number of large orders which it is expected to ship within a few weeks. The outlook for further business seems much brighter. Within the last two weeks among many other smaller tools shipped have been the following improved trimming presses for trimming drop forgings and heavy hardware: One 73½ press with cut-off attachment, two No. 74½ and one No. 75 press shipped to a large agricultural implement manufacturer. In addition to these a 1,500 lb. drop hammer and a 600 lb. drop hammer were shipped to two of the prominent heavy hardware manufacturers in the Eastern States, and a 400-lb. drop hammer and one 3½ toggle drawing presses with a complete set of dies to a large lamp manufacturing concern, also in the East.

The Cramp Metal Mfg. Co., of Philadelphia, Pa., has been organized to manufacture iron and steel. The incorporators are David J. Matlack, Benjamin H. Cramp, Edwin S. Cramp, Courtland D. Cramp, and Charles D. Cramp.

The Hughes Car Ventilating Co. has applied to the Dominion Parliament for a charter. The incorporators are William McKenzie, of Toronto; James Ross, of Montreal; Henry Everett, of Cleveland, Ohio; Samuel Hughes, M. P., of Lindsay, and James Grance, of Toronto. The principal office will be at Toronto, Ont.

The Shiffler Bridge Co., of Pittsburgh, Pa., has opened an office in the Betz Building, Philadelphia.

Iron and Steel.

Work has been resumed in the South Chicago plant of the Illinois Steel Company and it is the intention to start the rolling mills with a full force. This plant and that at Joliet were compelled to close early in the month on account of the strike, it being impossible to get the necessary coal and other material. The company was able to resume work at Joliet about two weeks ago.

New Stations and Shops.

The Delaware & Hudson Canal Co.'s new passenger station at Scranton, Pa., was formally opened to travel on July 30.

It is reported that the Southern Railway will probably establish its principal machine shops at Greensboro, N. C. Charlotte, N. C., is also being considered in connection with this matter, it is stated. What effect the proposed establishment of these shops will have on the Manchester, (Va.) shops, is not understood as yet.

The Lafayette Bridge Co. and the Taylor Lumber Co.

have secured the contract for building the new shops of the Louisville, New Albany & Chicago at Lafayette, Ind. The contract price, which is for the building alone, is \$127,300. It is expected that the shops will be completed by January 1.

The Fastest Ship in the World.

On June 23 the speed record for the world was beaten by the British torpedo catcher Daring. The mean of three runs over a measured mile was 28.7 knots, and the last of the three was equivalent to 29.3 knots; that is, the mean speed was equal to 33 land miles an hour. The boilers are on the Thornycroft principle, and when making this speed were worked up to about 250 pounds per square inch. The total heating surface of the boilers is 8,000 sq. ft. and the grate surface 89 square feet. There are three of these boilers. The vessel is 185 ft. long, 19 ft. beam, 7 ft. draft. The guaranteed speed is 27 knots an hour for three hours' continuous run. The engines are of a new type designed by Thornycroft for the torpedo catcher class of vessels. They are of the three stage compound type, cylinders 19 in. and 27 in. in diameter, 16 in. stroke. The engines are divided into sets, each of two parts, the high pressure and intermediate cylinders forming one-half, the low pressure the other. When making 28.7 knots an hour the revolutions averaged 284.3.

The Simplon Tunnel.

The engineers appointed by the Swiss Government to consider the feasibility of tunneling the Simplon Mountain have reported in favor of the plan. In October last the Jura-Simplon Railway Company made a contract with Brand, Brandau & Co., of Hamburg, and with Locher & Co., of Zurich, bankers, to form a company to build the tunnel. By the plans adopted some months previously the tunnel will have a length of 12.6 miles, or 3.1 miles more than the St. Gothard tunnel. The northern portal will be situated about 2,300 yards south of Brieg, at the little village of Im Raffi and the southern 600 yards beyond Ivel, just below the present wall gallery. Particulars of the contract were given in the *Railroad Gazette* of November 3, 1893, p. 806.

Power Transmission at the Paris Fair of 1900.

The *Electrical Engineer* of July 4 contains an editorial under the above title which makes a bold and important suggestion—namely, that the power for the Paris Exposition shall be generated by burning the coal at the mines now supplying Paris, and transmitted electrically. Such an enterprise would have a valuable advertising quality for the exposition and might be revolutionary in its results. Two English engineers, Messrs. Thwaite and Swinburne, have worked out the details of a scheme for transmitting power electrically to London from the coal fields of the Midland counties and Yorkshire, and they estimate that to generate and transmit 10,000 horse power 100 miles would cost not to exceed £340,000 for the plant; and it is further estimated that this power could be delivered to small users in London at \$20 per horse power per annum. The use of large gas engines at the generating points is contemplated, and a line potential of 30,000 volts. Assuming that the Paris Fair will require 20,000 horse power, about the same as that provided for at Chicago, the editor doubles the figures of the English engineers, making the initial total cost—say \$3,400,000, a large part of which could be got back in salvage of machinery and the copper in the line; or, if the experiment succeeded, the plant could be left for the regular supply of power to the city. It is suggested further that it might not be a bad idea to furnish 10,000 horse power in this way and 10,000 by generation on the spot, thus giving an opportunity to compare the cost of the two methods.

Safety Appliances.

General Manager W. H. Green, of the Southern Railway Co., has issued the following circular:

"Having adopted the Westinghouse automatic air-brake, the Westinghouse train signal, and the M. C. B. type of Coupler on all passenger trains, it is necessary in order to prevent delays and insure safety, that special or private cars passing over these lines be similarly equipped."

New Station at Lynn, Mass.

The Boston & Maine has just received bids for a new passenger station at Lynn, Mass., 10 miles from Boston, and work will be begun at once. The plans were prepared by Mr. Henry B. Fletcher, of the engineering department of the road, and show a main building about 40x125 ft. and a building with baggage, express and waiting rooms 25x103 ft. on the opposite side of the main track. There is an overhead bridge at Silsbee street and the present station covers the tracks, but the new one will be of the ordinary construction, the platforms being covered by a plain roof resting upon wooden supports. Standing at the Silsbee-street bridge and looking toward Boston one sees the main building of the new station at the right, and the end adjoining the street is four stories high or three stories above the street level. This part of the building forms a square tower and the remaining portion, with the rooms on the track level, is one story in height. The building on the other side of the tracks, which will be used by outward passengers going east, is one story high throughout. The buildings will be of buff-colored brick with brown-stone trimmings, and the interior will be of light-colored enamelled brick and quartered oak. The main waiting room will be 40 ft. x 100 ft. It is expected that the building will cost \$70,000 or more.



EDITORIAL ANNOUNCEMENT.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting, and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Internal Friction of Locomotives.

It has been suggested that the argument about the internal friction of locomotives in the *Railroad Gazette*, June 15, 1894, be carried forward to a more general conclusion, so as to define the limits of the variation of the internal friction of locomotives as nearly as possible with the data available. The results of such an investigation are given in what follows.

The average friction given in column 4, Table B, of the preceding article, is about 5 per cent., while with such perfect lubrication as a car axle journal box affords, the co-efficient of friction would probably not exceed 1 per cent. Columns 11 and 12 of Table C, with this, show the total internal friction in per cent. for co-efficients of 1 and 5 per cent. A comparison of these columns gives the probable range of friction in locomotives of the 8-wheel type within the limits of horse-power given in the table. With heavier engines having more weight on the four axles, the per cent. of power absorbed in friction will be greater than with the light engine at Purdue when both are generating the same total horse-power, but when both are doing work somewhere nearly in proportion to the weights on the bearings, the per cent. of power absorbed in friction will be nearly the same for both. In general, however, the greater the amount of power being developed the less will be the per cent. of power absorbed in friction. The reverse is also true, viz.: that the less power being generated the greater will be the per cent. absorbed in friction. These general statements are illustrated by the figures given in columns 11 and 12 of the table.

It is seen from what is known now that endwise motion of the brasses is necessary to reduce the friction to a minimum, and therefore lateral motion of the driving boxes on the axles is a good thing to have if there is not too much knocking when the engine is running. The value of end motion to bearings as a means of reducing the friction, is perhaps best emphasized by the experiments made by Prof. James E. Denton, which were presented in a paper entitled "Special Experiments with Lubricants," and given in Vol. XII, *Transactions Am. Soc. Mech. Engrs.*, in 1891. Reducing the friction of the driving axles from 5 per cent. to 1 per cent. by giving end motion and good lubrication might in some cases reduce the total friction as much as 10 per cent., and if a locomotive was hauling 30 cars, 3 cars more might be added after reducing the friction in this way. This may explain why some new engines have failed to do as much work as older ones that have end motion to the brasses and loose fits, and therefore less friction. Anyway the subject is an interesting one, and what is here given mainly illustrates the fact, which all must sooner or later recognize, that there are many intricate problems connected with testing locomotives; and reports of small savings, say from 5 to 10 per cent., must be taken *cum grano salis* until we know more about the little things which affect the saving and efficiency. There are many of these small factors, and when they all act together on the same side they may affect the results so as to give an apparent saving that can be attributed to some new device which is on trial, and in that way lead to wrong conclusions. It is the same old problem of the identity of conditions, that is forever in the mind of the trained physicist and experimenter,

and which experience teaches is hard to solve under most circumstances, with real things.

The Purdue locomotive trials, on which the illustrations given in Table C are based (see *Transactions Am. Soc. of M. E.*, Vol. IV, 1893, page 826), were made in sets, and therefore tests from 1 to 6, 7 to 12, 13 to 15 and 16 to 20, all inclusive, were each made for a special purpose, and it might be expected that the friction of the locomotive would be nearly the same in the different tests where the conditions were nearly the same, and in such tests as are practically duplicates of each other, especially where there is no change in the mean effective pressure. The calculated results as to friction that are given in Table C are based upon the known conditions, which are nearly the same for the different individual tests in the series, and upon an assumed co-efficient of friction which is taken as the same for all the different tests. Actual tests will show wide variations in the co-efficient of friction, owing to the variations in the conditions which cannot be allowed for in calculation. The main value of an estimation of the friction is to determine the limits, that is, the probable maximum and the possible minimum under different conditions. A five per cent. co-efficient of friction for

having small wheels, and in which the journal velocity is high compared to that of the train. When consolidations are running with light loads, especially if the journals are large and the wheels are small, the internal friction may be nearly double that given in the table for 8-wheelers.

Perhaps the most useful fact shown by these results is that the principal part of the total friction, in horse-power (not in per cent.) of the locomotive arises from the weight on bearings, and this is probably constant in amount, not in per cent., for wide variations of horse-power when the speed remains the same. In other words, a large part of the total friction, in horse-power, of a locomotive is constant for any given speed even if the power changes, and this part of the friction varies with the speed, being less at high speed and greater at low, as has been shown to be true of oiled bearings within certain limits.

The Nicaragua Canal.

Some gentlemen connected with the Nicaragua canal have gone across the ocean, and some one thinks, or pretends to think, that they will sell that precious concession to the Britishers, to the everlasting loss

TABLE C.
This table shows the probable range of internal friction of 8-wheel locomotives in per cent. between the mean effective pressures of 40 and 60 pounds per square in. in the cylinders, and for speeds ranging from 80 to 130 revolutions a minute.

No. of Test.	Mean effective pressure, pounds per sq. inch.	Revolutions per minute.	Total average thrust on axles, pounds.	Journal velocity: feet per minute.	P. c. of power absorbed in friction (taken at 1 p. c.) to weight thereon.	Ditto, friction taken at 5 p. c.	P. c. of power absorbed in friction (taken at 1 p. c.) of driving axle, due to thrust of pistons.	Ditto, friction taken at 5 p. c.	P. c. of friction of other parts than driving axles taken from tables A and B. See <i>Railroad Gazette</i> , June 15th, 1894.	Calculated friction of driving gear and driving wheels, the axle friction being taken at 1 p. c.	Ditto, the axle friction being taken at 5 p. c.	Total indicated horse power.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	29	82	13,200	150	.018	.090	.005	.025	.097	.12*	.21*	106
2	28	79	12,700	145	.017	.085	"	"	.098	.12	.21	103
3	29	81	13,280	149	.018	.090	"	"	.094	.12	.21	105
4	28	79	12,500	145	.017	.085	"	"	.096	.12	.21	103
5	29	80	12,960	147	.018	.090	"	"	.093	.12	.21	104
6	27	80	12,400	147	.018	.090	"	"	.108	.13	.22	104
7	31	127	14,100	234	.018	.090	"	"	.099	.12	.21	166
8	30	128	13,600	236	.018	.090	"	"	.097	.12	.21	167
9	30	128	13,680	236	.018	.090	"	"	.095	.12	.21	167
10	32	129	14,400	236	.018	.090	"	"	.094	.12	.21	167
11	30	128	13,400	236	.018	.090	"	"	.093	.12	.21	167
12	27	128	12,360	236	.018	.090	"	"	.093	.12	.21	167
13	53	78	23,900	144	.009	.045	"	"	.083	.10	.15	201
14	52	76	23,300	140	.008	.040	"	"	.080	.09	.15	209
15	56	81	25,600	150	.009	.045	"	"	.078	.09	.15	211
16	54	136	24,600	250	.009	.045	"	"	.082	.10	.15	354
17	58	130	26,600	240	.009	.045	"	"	.083	.10	.15	338
18	58	132	26,300	242	.009	.045	"	"	.081	.10	.15	341
19	56	129	25,400	238	.009	.045	"	"	.082	.10	.15	336
20	65	128	29,700	232	.007	.035	"	"	.082	.09	.15	395

* 3d decimal omitted.

the driving axles is probably as large as would be found in regular service, excepting in the case of new engines closely fitted, especially those that show a tendency to hot boxes. A one per cent. co-efficient of friction is as low as would probably be obtained in regular service for any considerable portion of a run, even with old engines having considerable end motion in the journals. Although the co-efficient might be somewhat less just after oiling, yet this would not affect the average results to any great extent as the reduced friction would remain but a short time.

Taking one per cent. as the probable minimum that would ever be obtained under any circumstances in a locomotive driving box, and five per cent. as the maximum average co-efficient that would be found where the locomotive had been used for some time, and had at least 1/8 inch end motion to the brasses, the last two columns of the table give nearly the range of variation of per cent. of power absorbed in the internal friction of locomotives under average service conditions between 30 and 60 pounds mean effective pressure. With new engines, and inferior grades of oil, and careless packing, the power absorbed would be greater than the maximum amount given in the table, and the minimum amount would be only reached when the journal brasses had considerable end play, and the boxes were newly packed with fresh waste thoroughly saturated with good oil.

The range shown in the table is that of an 8-wheel engine working between the limits of about 30 and 60 pounds mean effective pressure, and does not include the friction of the engine truck or the tender, both of which must be added to get the total friction of the engine. The figures given are for the driving mechanism only, and do not include the rolling friction of the wheels on the track; they include simply the transmission machinery. Estimates of the friction of the engine trucks and tenders must be made just as for cars.

The friction of engines having more than two pairs of drivers is greater than that given in the table, especially in the case of consolidation locomotives

and disgrace of the Eagle. We advise calmness in this emergency, for, first, the Englishmen are little more inclined than we are to spend money now; second, this is not the first time they have had a chance to own the Nicaragua canal, and they are not likely to snap it up now; third it is not demonstrated that English ownership of the canal would be a misfortune for us; and fourth, it would be a colossal mistake to pledge the credit of the nation to the enterprise without knowing pretty accurately what it will cost, and in the present state of the nation's finances it would be a crime. The first and second of these propositions are obvious. The others we shall not discuss at length now, but they are new to a good many people, and we will suggest a line of thought concerning them.

It is assumed that for the English to build and control the canal would be a calamity to us as a nation. To the contrary, it might be great good fortune. The enterprise is very risky, and if any one's money is to be lost in it it is better for us that it should be the Englishman's than our own. Any intelligent man knows that we, as a people, and as individuals, suffer when Englishmen or Frenchmen lose their money in unproductive ventures, and that we to-day are feeling, here in the United States, the effects of gigantic losses in Panama, Argentine, and the Australian colonies. But still we feel those losses less acutely than if our own money had been lost directly. So, if any one is to lose money in the Nicaragua canal it is bad for us; but it is better that it should be foreign money than our own.

On the other hand, if the Englishmen build and control the canal we shall have all the advantages of it in time of peace that they, or any other people, have. Trade must be tempted through it by just and reasonable rates or it will not go, and the holders of the securities will lose their interest. In time of war the nation that gets there soonest and in greatest force will hold and use the canal, and its nominal owners may or may not belong to that nation. Is it not a little absurd to talk of occupying and protecting

the ends of a canal in Nicaragua when we have neither the ships nor the guns to protect Boston, New York, Philadelphia, Washington, Charleston, New Orleans, San Francisco, Chicago and the lake cities? For the lake cities must not think they are safe from naval attack if England should be our foe.

Finally, as to the fourth proposition: Some 19 months ago we made a very careful analysis of such figures and plans as the public is allowed to know about, and concluded that it is not proved that the canal can be built for \$100,000,000; that on the other hand, it is highly improbable that it can be built for less than twice that sum; and that before the credit of the nation is involved the truth ought to be ascertained by a scientific and impartial study of the facts. Still, no such study has been made so far as the public knows; but we know of one great contracting firm which had the ground examined by its own engineers, for its own business purposes. Those engineers had the best of all reasons for getting at the truth—private financial and professional interest—and they reported the canal would cost at least \$400,000,000. So again, we warn Congress and the country not to be stampeded by loud cries. Insist upon a thorough study by, and a report from a board composed of eminent officers of the navy and the army, and at least two experienced and capable engineers. If the scheme cannot stand such scrutiny it is worthless, and the sooner it is abandoned the better. If it can stand it no harm is done. There is no emergency; the Englishmen are not crazy to get the canal.

Concerning Passes.

Mr. J. T. Brooks, Second Vice-President of the Pennsylvania Co., tells Mr. Joseph H. Choate that for eight years he has maintained, single-handed, a contest against the issue of free passes to persons occupying official positions in city, county, state and Federal governments. This is in a letter sent to Mr. Choate as President of the Constitutional Convention of the State of New York, and designed to further the adoption of an amendment to the constitution forbidding the issue of passes to persons holding public office.

The letter appears on another page of this issue, and it is a good one. It suggests a demoralization of public opinion on this matter that is startling. From Justices of the Supreme Court of the United States down, people seem to think that they have a right to use the property of the owners of the railroads without giving an equivalent. Or if they think that they can give an equivalent so much the worse, for what can a judge give, or what can a law-maker give that he ought not to give in the simple line of duty, or else not give at all? The truth is that notions of right and wrong on this subject have become so distorted that men, who in all other relations of life are proud and honorable, humble themselves to beg passes and do not suspect the humiliation. Indeed, certain States of the Union have actually passed laws requiring railroads 'o give annual passes to members of the legislature, to State officers and members of courts. The thin sophistry by which they excuse this action is that it is better to make the free transportation of these public officers compulsory and legal than to allow passes to have the taint of bribery. To the simple-minded it seems as if such laws were pure confiscation, and as if public officers could escape suspicion of bribery by declining to take passes.

Our efforts to get rid of passes are a good deal older than those of Mr. Brooks, although they may not have been so persistent nor have had so much practical effect. For twenty years we wrote against the practice of giving free passes, and for many years there stood on the editorial pages of the *Railroad Gazette* this notice, printed so conspicuously that it could not well escape attention: "All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office." This policy cost us a good deal of money, for the work of a newspaper in its various departments, and especially of a railroad newspaper, involves much traveling. The result was the approval of a good many men whose approval we would do much to deserve. We have reason to think, too, that it braced up a few men to stricter practice in giving passes; but the fight long ago ceased to seem to us to be worth making. In editorial work as well as in any other work due regard must be had to the result got with a given expenditure of energy, and it long ago seemed to us that we could get more for the energy expended by writing about matters that railroad men seemed to be interested in, than by writing about passes, and so we concluded to fight along easier lines until circumstances should awaken the public mind. We question very much if the time has

yet arrived for a useful campaign against passes. Perhaps the amendment now before the New York Constitutional Convention will be adopted; we hope it will, and that it will take such form that it will not be a mere dead letter, like the provision in the Pennsylvania Constitution. If editors also are included in the restriction so much the better; we shall be glad to take our chances with the rest.

The Bond Market for July.

There was much less activity and more strength in the market for railroad bonds during the month of July than in the previous month. In June the feature was the weakness in the securities of roads in the hands of receivers. This was brought on by the publication of the Atchison plan of reorganization, which treated all issues of the Atchison road proper, excepting the firsts, in a radical manner. Securities of roads similarly situated, for example, Union Pacific and Northern Pacific were sympathetically affected. Since that time no reorganization plans of any moment have come to a head, and the market for these various securities has crystalized upon the basis made during the month of June. This was 2.72 per cent. lower than the May basis.

The movement during July was an advance of only .06 per cent. Inertia was characteristic of the other groups also. Taken on the average it was a stationary market, entirely in sympathy with the waiting policy of capitalists. The course of the stock market shows that the same set of conditions apply to both. The delay in tariff legislation and uncertainty as to the crop yield are the main immediate causes. The decline in active railroad stocks in a month has been from 1 to 3½ per cent. The average movement of the various groups compared^a shows that it has been irregular. Strike news in a number of instances caused timid holders of securities to liquidate. Under normal conditions this would not have affected prices, but just now, owing to the narrowness of the market, the declines have been quite pronounced.

Underlying these various causes there is an element of strength due to the inability of capitalists to secure interest on their money in other fields. It would not be surprising if any demand which might arise through a general revival of business would be partly offset by selling by capitalists who have invested their funds in these railroad securities temporarily until they can use their money in business enterprises.

A noteworthy feature was the decline in Atchison securities, about the middle of July, due entirely to the disclosures made by Mr. Stephen Little. Foreigners forthwith sold heavily.

The decline in the fours was 4 per cent., and in the seconds 6. St. Louis & San Francisco issues declined through the same causes. The greatest decline was scored by the sixes, it being 9 per cent. Atchison 4 per cent. bonds sold to the amount of \$1,379,000, par value, and the seconds \$1,133,000.

Northern Pacific issues were comparatively active and generally declined about 1 point, with the exception of the terminals, which advanced 6 points. The thirds are an exception, advancing $\frac{1}{2}$. The greatest decline during the month was 6 points. The net advance was said to be due to purchases in the open market and Europe of one-third of a million by the consolidated bondholders in order to obtain a majority, so that their securities might be listed on the New York Stock Exchange. It will be remembered that the committee was refused a listing until they could show a majority. The other bonds were weak on continued heavy decreases in earnings, and the complicated differences between the various bondholders' committees. The various issues were traded in to the extent of something over a million dollars.

Reading securities were more than usually active owing to the favorable earnings made in June and the prospect of a reorganization this fall to be furthered by the receivers and Drexel, Morgan & Co.

Union Pacific issues relapsed to comparative quietude. Holders of the securities are now pursuing a waiting policy. It is not thought probable that the measure for the adjustment of the Government debt will be put through by Congress at this session. Until Congress acts there can be no intelligent consideration of a reorganization plan. However, various security holders are taking the preliminary steps by asking for a deposit of securities with a view of being more nearly ready when the Government acts. The decision of the Drexel-Morgan syndicate not to disturb the collateral trust indenture due August 1, so long as interest is paid, is construed as decidedly favorable to the securities.

A noteworthy feature of the receivership group was the rally of 3½ points in Wisconsin Central firsts on the change in the proposed reorganization plan, which will offer to coupon holders a just equivalent for their defaulted interest. Oregon Railway & Navigation firsts showed an advance of 3 points on the severance of the line from the Union Pacific system, and the traffic arrangement for

transcontinental business, which it formed with the Great Northern.

The Richmond Terminal issues all exhibited strength on the final completion of the reorganization on a basis which will enable it to earn its fixed charges.

In the Grangers there was some investment buying in small lots. It can be safely assumed that there was little or no speculation. This is the one group affected by the strike which did not show a decline. The bonds are too far removed from the effect of any temporary interference with earnings.

The coal issues advanced one tenth of 1 per cent. These are high-priced bonds and are very desirable as an investment. There is nothing in the condition of the coal trade that would warrant an optimistic view of the railroad situation from that standpoint. Production is heavy and prices are considerably demoralized. Unless the various producing interests adhere closely to their agreement to restrict to 40 per cent. during August, the trade will be in bad shape during the fall.

The decline of .67 in the Southwestern group was due largely to the weakness in Missouri Pacific collateral trust fives, which declined 7. This, due to bear manipulation, forced the company to announce that it was then ready to pay coupons due August 1. Wabash seconds declined 4, on a rumor that interest would not be paid. It was announced later that the money was on hand for this purpose.

The advance in the Trunk lines was the greatest in the list, .96 per cent., and was due to investment buying.

Fifteen yardmasters on the Western Division of the Chesapeake & Ohio were the recipients last week of handsome badges bearing an inscription testifying to their bravery and fidelity to their duties during the strike. These badges were presented by Superintendent J. M. Gill as tokens of the esteem in which the men are held by their superior officers. Mr. William McLain, a bridge watchman on the Kansas City, Memphis & Birmingham, has received special recognition from the officers of the road, and from the local newspapers, for his courageous defense of a trestle near Adamsville, Ala., when a mob of strikers tried to set it afire. The attack took place at 3 o'clock in the morning and the watchman had to go some distance to his house for assistance and ammunition. He was helped by his two daughters, one of whom was injured by a pistol shot from the strikers. The United States Express Company has made a gift of \$10 apiece to many of its men in the station and wagon service at Chicago and Cincinnati in appreciation of their faithful and courageous service during the strike.

We have received a copy of a circular issued by President Fish, of the Illinois Central, the principal part of which reads as follows:

The disturbances instigated by the leaders in the recent "sympathetic" strike being quelled, the President of the Illinois Central Railroad Company takes this method of expressing his heartfelt thanks to the officers and loyal men in the company's service for their resolute and efficient efforts to overcome the malignant violence of the mob while those disorders lasted. With few exceptions, the company's employees remained faithful to their obligations. They performed their duties without flinching, and exhibited a coolness, steadiness and intrepidity in trying situations which merit the highest praise.

The railroad companies have no power to determine what wages the Pullman Company shall pay, or can afford to pay, the men it employs. It is gratifying to be able to state that the public authorities in every county and town along the Illinois Central Railroad, almost without exception, early saw the imbecility and wickedness of the movement which had been set on foot to gratify the humor or the malice of a few irresponsible agitators. For the extraordinary exertions put forth in the face of great difficulties by the officers and men in the company's service to protect its property, and to perform the duty to the public to which that property is dedicated, they will please accept, one and all, our cordial thanks and acknowledgments. Like thanks and acknowledgments are also due and are gladly tendered to all those public officers, whether Federal, State or Municipal, who seeing their duty, dared to perform it, during the late trying ordeal, as well as to the real associations of organized labor, to the Boards of Trade, and other civic and mercantile associations from one end of the land to the other, to whose constant and cordial support it is largely due that the disorders were confined to a few localities, and that the destruction of property and hindrance to trade were not greater and more widespread.

The plans for the elevation of the main tracks of the Providence division of the New York, New Haven & Hartford, between Boston and Forest Hills, which are very extensive and have required a vast amount of work, have just been completed and laid before the City Engineer of Boston. The report of the engineers accompanying the plans fills 400 type-written pages. This improvement extends over a length of four miles through the thickly settled portion of what was formerly Roxbury, now Boston, and the railroad, which now has three main tracks will have four throughout this distance. Going westward the new grade begins to ascend 4,800 ft. from the Park Square terminus in Boston, and there are fifteen or more streets to be bridged. It is designed to erect plate girder bridges at eleven of these streets and arches at the others. For some of these arches stone seems to have been decided upon, while at others the report specifies "arches of stone, steel or iron." All the bridges are to have solid floors, covered with concrete and ballast. Five stations will have to be rebuilt on the new level or be torn down and superseded by entirely new buildings. An important feature of the work is the changing of the channel of Stony Brook, which now runs parallel to the railroad for

*Receivership roads advanced		\$0.06
Grangers	"	.24
Trunk Lines	"	.96
Southwestern	"	.67
Coalers	advanced	.10
southern	declined	.65
Transcontinental	"	.22
Miscellaneous	advanced	.47
Combined list average advanced		\$.03

a long distance, and is at some points very close to the track and at the same time several yards below it, retaining walls having been put in many years ago. A new freight yard is to be laid out at Heath street, Roxbury. No close estimate of the cost of this improvement has been made. Several years ago, when it was first proposed, the estimate was \$2,500,000; now it is said that it may cost \$4,000,000. Under the special act of the Legislature the railroad pays 55% per cent. of the total cost, the city of Boston 13 per cent., and the state of Massachusetts the remainder.

The economy of safety is something that operating officers recognize a good deal more than financial officers and directors. A high official on the railroads of New South Wales writes to us "I am glad to see your paper so often bringing to notice the want of safety on American lines. The number of accidents appears to me excessive, after my English training, and also after my Colonial experience, where the conditions are so much like those of America. The total compensation paid for accident losses on goods and passengers on the New South Wales Railways for some years back is very small. . . ." Then follows a list of the expenditures, each year, to which we have added the figures showing the length of road and the amount of business done.

Year ending June,	Payments.	Miles of Road.	Train Mileage: Thousands.
1889	\$7,895	2,128	7,641
" " " " " " " "	10,886	2,177	8,008
" " " " " " " "	14,807	2,182	8,410
" " " " " " " "	7,803	2,182	8,356
" " " " " " " "	3,590	2,316	7,505
July 1, '93 to May 30, 1894	5,025		

Comparisons with American railroads cannot be readily made as statistics published in this country generally do not give the necessary data. From the last annual reports of three roads we extract the following:

	Rev. Train, Miles, Hundred.	Damages.	Cost pr 100 t. m., cts.
Boston & Albany	58,827	\$25,332	43
Lake Shore & M. S.	141,288	339,131	240
Pennsylvania	507,913	506,149	100
N. S. Wales Rys. ave- rage per yr, 5 yrs, }	80,000	44,981	50

As the accounts are not kept in the same manner on all roads these figures are to be taken only as approximations. The Pennsylvania reports engine mileage, not train mileage.

A few months ago rumors were afloat that the Colony of Victoria had sent to the United States for a general manager for the colonial railroads. We have at last succeeded in running the story to earth. In that colony the railroads have unfortunately passed again under political control. The politicians of the colonies are always trying to control the commissioners, with varying success. They have given the New South Wales commissioners no end of trouble the last two or three years, but do not seem to be able to impair the efficiency of the department in that colony. In Victoria, however, they are running things more their own way, and a short time ago there was a great talk of getting a manager for the lines from America, and a Minister of the Crown was despatched to Europe and America "to ascertain what were the qualifications necessary for a railway manager." After he had educated himself on this elementary question he was apparently to endeavor to engage the right man. But little has been heard of the subject of late, and perhaps the Minister is still unable to find the ideal man. We heartily recommend Debs. He does not believe in discipline (unless he can discipline) and does believe in "the great heart of the people," the two essentials for a political railroad manager. Besides, we can spare him.

Definite information concerning what is likely to be done at Boston about an elevated railroad continues to be conspicuous by its absence. "The Boston Elevated Railway Co.," the organization specified in the law, has among its incorporators Joe V. Meigs, Abram S. Hewitt and Herman Haupt, but nothing is given out concerning the financial side of the project, except that the money is to come from New York. The Boston Herald says that the vote of the city does not indicate an intelligent approval of the project. Some of the wards which would be most benefited by the proposed road voted against it, and it is concluded that the favorable majority was made up of men who hoped to get work as laborers upon any such public improvement. The majority in favor of the road was less than 1,100.

NEW PUBLICATIONS.

American Street Railway Investments. A supplement to the *Street Railway Journal*. New York: The Street Railway Publishing Co., 1894. Pages 216, quarto, and 24 maps. Price, \$5.

The street railroad interests have come to be so great and the capital invested is so large and increasing so rapidly that the need of a manual for the ready use of brokers and investors is seriously felt. The publishers have attempted to supply this need in the work before us which they will issue annually. Certain data are collected concerning over 1,000 street railroad companies, operating in about 600 cities and towns. For cities of 50,000 inhabitants and more, and for a few smaller places, municipal statistics are given which have a bearing on the value of the city for street railroad investment. The cities and towns appear in alphabetical order, making reference very convenient, and it is the purpose to describe all companies in the United States that actually own or operate street railroads.

We cannot speak as to the accuracy of the work, but take it for granted that there is no fault to be found in this respect. But it seems to us that a good deal more information ought to be given in the next edition. Of course the beginning of such a work is very difficult and the collection and compilation of data is much harder than it will be found to be in the second edition.

The scope of the work may best be shown by describing its treatment of one or two special cases and we will take for instance Albany, N. Y. The geographical location is given, the population in 1880 and 1890, the railroad and steamer connections, the amount of capital invested in manufacturing, with a statement of the principal productions and of the hands employed in manufacturing, a statement of the banking capital, assessed valuation, municipal debt and tax rate. Under the Albany Railroad is a statement of the capital stock, the funded debt and a description of the securities of various classes; then follows a table showing the receipts from operation, operating expenses, dividend paid and surplus, this for two years. A very condensed balance sheet shows the assets and liabilities. The description of the physical condition of the system gives the gage, weight of rail, number of cars and a very meagre account indeed of the motive power equipment. The names of the officers also appear and there is a map of the system. There is no statement whatever of the number of passengers carried, of the car mileage, nor any analysis of the operating expenses, but the facts given concerning this system are more than are given for much the greater part of the railroad companies mentioned. As a rule, the receipts, operating expenses and balance sheet do not appear at all. We say as a rule, because from a casual inspection of the pages this seems to be the case with considerably more than half of the railroads. We notice further that the same company is spoken of in one place as an electric railroad company and in another as an electric railway company, showing a certain carelessness in such an important little matter as the corporate name of a concern. Yet, notwithstanding these defects the book contains a great deal of information that is not only very useful but is not collected anywhere else so far as we know.

THE SCRAP HEAP.

Notes.

In a large fire at Minneapolis on July 30, destroying 20,000,000 ft. of lumber, the Pintsch gas manufactory on the Chicago, St. Paul, Minneapolis & Omaha Railroad was burned, together with 40 freight cars and several small buildings.

A Receiver has been appointed at Chicago for the Switchmen's Mutual Aid Association. The liabilities are \$75,000 and the assets consist of \$1,150 in money and the defaulting treasurer's bond of \$20,000. Local lodges at various places are reorganizing.

It is reported that the Territorial officials of Oklahoma have prevailed upon the Chicago, Rock Island & Pacific to erect stations at Enid and Pond Creek, and it is believed the trouble over the question is over. On July 24 about 200 persons were arrested by the United States Marshal for complicity in the bridge burning and other illegal acts.

Judges Kelly and Otis, sitting in the district court at St. Paul, Minn., have filed a decision in the ejectment action brought by the city of St. Paul against the Chicago, Milwaukee & St. Paul in favor of the city. The decision affects the possession of valuable property now occupied by the St. Paul road on what is known as the levee and is in favor of the city. An appeal has been taken.

A report was sent out from Aurora last week to the effect that the Burlington road had given orders not to issue any more passes to employees, except on strictly railroad business. This is denied by the officers of the road, who say that no such order has been given, nor is any contemplated. They explain the origin of the report in the effort which they make every year to keep the number of vacation passes within reasonable limits.

Estimates now made of what it cost the State of Ohio to guard the coal trains during the late coal miners' strike, place it at \$150,000 for pay to the militia and about \$50,000 more for transporting troops, telegraphing and other incidentals. As the fund for the maintenance of the militia is not sufficient to meet this expense different banks are loaning the State the money till the Legislature meets and makes the necessary appropriation.

Great damage was done in Wisconsin by forest fires on Friday, Saturday and Sunday last. At Phillips, on the Wisconsin Central, 78 miles south of Ashland, at least 20 persons were burned, suffocated or drowned, and a number of others are missing. The Wisconsin Central Railroad suffered seriously, but trains were reported running on Tuesday of this week. The city of Phillips was wiped out and the loss was estimated at between one and two million dollars. The White River Lumber Co. lost 30,000,000 ft. of lumber. The Chicago, St. Paul, Minneapolis & Omaha had two freight trains burned up and two bridges were destroyed.

There is considerable satisfaction among railroad officials at the failure of the legislature to pass an act instituting a State railroad commission. There was some fear at the opening of the legislature that such a law would be enacted. The railroads, however, were prompt to take steps in the matter, and had representatives at Baton Rouge all during the session of the legislature to keep an eye on the interests of the railroads. The general opinion of railroad men is that the bill failed to pass for the rea-

son that the people in the State had too much confidence in the honesty and fair dealings of the railroad officials. This may or may not account for the non-passage of the act. . . . The probabilities of such a bill being passed at any future time are very much less than they have ever been.—*New Orleans Picayune.*

In Bridgeport, Conn., on the morning of July 26, there was rioting at a crossing of the New York, New Haven & Hartford where a street railroad company tried to lay tracks across. The trackmen of the New Haven road tried to crowd out the street men by mere mass of numbers, but this failed, and then a freight train was run upon the crossing. Hostilities gradually became demonstrative and steam and hot water were thrown upon the crowd from the locomotive. The street laborers then succeeded in drenching the cab with a large hose fed from a hydrant, and this was answered by chunks of coal: next the section master succeeded in cutting the hose. A passenger train was delayed some time. Finally an injunction was secured stopping the operations of the street railroad men. Some of the trainmen were arrested for keeping the train on the crossing beyond the legal time limit.

Ship Building in the United States.

The Bureau of Navigation publishes a statement of vessels built in the United States in the year to June 30, and officially numbered, as follows:

	Number.	Tons.
Wooden sailing vessels	538	37,710
" " " " " " " "	308	44,158
Iron or steel sailing vessels	3	4,750
" " " " " " " "	45	47,776

Unrigged vessels are not included in the statement.

Pintsch Gas in a Wreck

In the recent derailment on the Chicago & Grand Trunk Railway near Battle Creek, Mich., the gas lights in the coaches were extinguished by the shock without doing the slightest damage. Indeed, we have yet to hear of a case in which a fire has been set in a wreck by this system of lighting.

The Steamship Northwest.

Since the publication of an article in our issue of July 20, concerning the interesting experiment making by the Northern Steamship Company in establishing a very expensive, fast steamer service for passenger travel only, we have received a little further information. It appears that westbound the delays are quite immaterial, and are generally due to the locks at the Sault Ste. Marie. These, however, have been growing less and less, and passengers are landed at Duluth for connection with the Great Northern Railway every trip. In case of serious delay a special train would be made up to take passengers to St. Paul. The vessel leaves each terminal promptly on time. The new lock now nearing completion on the Canadian side will help the situation by relieving traffic, and next year the big new lock on the American side will probably be done. On the eastbound trip the delays are not serious, an hour and a half being the worst in recent trips. It is believed that business travel will keep up till the end of the season and the company is still satisfied with the results and believes that the experiment is sure of success. The North Land will not be put in commission before next season, her completion having been delayed by strikes in the shipyard.

The New Union Station at St. Louis.

The new Union passenger station at St. Louis is approaching completion and is expected to be ready for use by September 1. The general offices of the Terminal Railroad Association, the company which owns the station, as well as the tunnel, bridge, etc., were removed to the new building on July 28. This station is spoken of as the largest in the world and doubtless is so in many features, if not in all. It was illustrated and described in the *Railroad Gazette* of July 24, 1891. The headhouse fronts on Market street (facing north) and is 450 ft. long and 80 ft. wide. The train shed is 600 ft. x 604 ft. and contains 30 tracks. The shed consists of a single roof in the shape of a very flat arch, 75 ft. high in the center, supported by four rows of intermediate columns, besides those at the sides. The 150 ft. of frontage on Market street not occupied by the headhouse is to be filled by a hotel, which is now in course of construction. This will be uniform in design with the railroad station and will add to its completeness, making the whole establishment one of the handsomest and most convenient railroad stations ever built.

As previously stated, the headhouse faces north. All trains departing from the station proceed southward about one-third of a mile where a Y connects with the main east and west tracks now used by the trains of the roads entering St. Louis from the west, on their way to and from the present Union station. The Y is about two-thirds of a mile west of the present Union station.

Extension of the Lake Street Elevated.

The Chicago City Council passed an ordinance last week permitting the Lake Street Elevated Railroad to construct and maintain for a period of fifty years an elevated structure with two tracks spaced not more than 12 feet apart from center to center with the necessary switches, side tracks, turnouts, etc., along Lake street from Market street to Wabash avenue. This was introduced and passed as a substitute for an ordinance reported last month extending to July 1, 1896, two ordinances originally passed in November, 1890, and December, 1892, which permitted the company to build a loop from Market street and adjoining the line of Couch place, Dearborn place and Haddock place. The railroad company has obtained the signatures of the owners of 2,400 ft. of frontage out of a total of 4,514 ft. The terms of the ordinance just passed require that trains operated over the extension and passing over the Lake street bridge eastwardly shall at least alternately continue eastwardly over the line of road as authorized, and in case the company shall in the future obtain the right to use a loop line for running its trains, then all its trains proceeding eastwardly over Lake street shall continue to proceed eastwardly over the road authorized, and no trains shall move westwardly over the extension except such as have first proceeded eastwardly over it. In case a line of road is built through the north division of the city, and connecting with this road, all trains running southwardly shall run in an easterly direction over this extension. Stations are to be erected at Fifth avenue, Clark street and State street. The provisions for motive power, rate of fare and general construction are the same as required in the ordinance granting permission to erect the original line.

Track Elevation in Chicago.

It is reported that the Pennsylvania Company has practically decided to elevate a part of its tracks in Chicago

and that an ordinance providing for the work will soon be introduced in the city council by agreement between the railroad company and the city officials. It is understood that this action on the part of the railroad company has been brought about by the proposed elevation of the tracks of Lake Shore & Michigan Southern and the Chicago, Rock Island & Pacific roads. The tracks of the Pennsylvania Company parallel those of the Lake Shore & Michigan Southern north of Sixty-third street, at which point they also cross the tracks of the Chicago, Rock Island & Pacific. It therefore seems desirable to elevate this portion of the tracks of the Pennsylvania Company at the same time that the tracks of the two other companies are elevated, as the work can then be done with the least trouble and inconvenience. It is probable that the elevation will begin about at Fifty-fifth street and that the tracks will come to their present level at the same point as those of the Lake Shore & Michigan Southern.

It is said that plans are also being prepared for the elevation of the tracks of the St. Charles Air Line, which runs from the Burlington road at Fifteenth street eastward to the Illinois Central. The tracks of the South Side Elevated road are said to present the main obstacle in this case, and it is proposed to overcome it by elevating them ten feet higher and allow the others to pass under.

On Certain Genuine Charities.

At the last conventions of the Master Car Builders' and Master Mechanics' Associations at Saratoga, a sacred concert was given on Sunday evening, not only for the entertainment of those who were assembled but for the eminently practical purpose of collecting money for certain very fine charities. The cash contributed amounted to \$174.23, half of which was sent to the *Daily News* Fresh Air Fund, Chicago, and half to the *Tribune* Fresh Air Fund, New York. We have received from Mr. F. W. Coolbaugh copies of letters sent to him by the managers of those funds acknowledging the receipt of the cash, and we give extracts from those letters in order that the contributors may know what was done with their money, and feeling sure that other readers will be interested to know of some of the good deeds done at the conventions entirely outside of the railroad work. Mr. C. M. Fay writes:

"In behalf of those who cannot speak for themselves, permit me to thank you for the check of \$87.11, being half of the proceeds of the sacred concert at the June conventions of the Master Car Builders' and Master Mechanics' Associations, at Saratoga. It is more welcome than I can tell you, because of the great need of help this season. The Sanitarium opened June 11, and for the 29 days since the record is: Sick babies, 3,354; mothers, 4,730; children, 8,974. It must be understood that every organized charity in Chicago is shut down during the spring and summer months, and that the *Daily News* Fresh Air Fund is the only living help to the poor and the sick at this time. Our work proper is to care for sick babies, and incidentally the mothers of them; but the demand comes to feed hungry children and clothe them, and the same for the mothers, and so we are compelled to do a large amount of work properly belonging to a relief and aid society. In order to treat a sick baby, we must also care for the mother and the older children in the family. In short, we never say 'no' to any woman or child in distress."

Rev. Willard Parsons writes: "I beg to make most grateful acknowledgment of your check of \$87.12, the same being one-half the proceeds of the sacred concert given at Saratoga in June last by the members of the Master Car Builders' and Master Mechanics' Associations. The *Tribune* Fresh Air Fund relies entirely on voluntary subscriptions with which to carry on its work of sending poor children from the overcrowded tenements to the country for two weeks. The average expense per child for that period is \$3, though last year it was much less. It will thus be seen that this handsome contribution will accomplish as great, if not greater, results than the most exacting could expect."

South American Notes.

The Uruguayan Minister of Government is said to contemplate an attempt at installing rural tramways to connect the provincial centers of population with each other and with the railroad stations. This is to be in connection with the scheme of the Department of Public Works for "economic narrow-gauge railroads." It is said that the ministers have "exchanged views" and are considering the best means for enlisting local and foreign support to the undertaking.

In reference to the development of irrigation in Argentina, the *Times of Argentina* states that "after many ill-conducted efforts, an American engineer of the Pierce Well Drilling Company, Mr. A. Catlin, has come upon the scene, and has been perfectly successful in sinking many artesian wells, both in Argentina and Uruguay."

The Governor of the Department of Panama, Colombia, in his message to the Assembly, recommends the appropriation of \$375,000 gold, secured upon the fixed income of the department, for water works improvements in the city of Panama.

The pier which a French company has contracted to build at Iquique, Chili, will be 500 metres long by 20 metres in width. Three-fifths of its length will be constructed of iron, and the remainder of wood. The structure will be supported on three lines of pillars 2½ metres in diameter. The pier will be supplied with hydraulic cranes and winches, and six vessels can lie alongside at one time. It will cost about 5,000,000 francs.

It is reported that the contract for extensive improvements in the port of Montevideo, Uruguay, will be awarded to an American firm.

A project has been set on foot at Puerto Principe, Cuba, for the construction of a new railroad to be known as the Ferrocarril de Santa Cruz del Sur, which will open up new sugar lands. The enterprise is under the direction of Senor D. Emilio del Monte.

The Minister of Bolivia in Montevideo is said to be charged with the mission of negotiating for communication between his country and the Rio de la Plata. The project is to extend a railroad from Potosí, Bolivia, via Sucre, to the Rio Paraguay at a point opposite Asuncion. The Antofagasta and Bolivia Railway Company is about to build a branch from its main line at Uyuni to Potosí, so the proposed new road would connect with this, affording through connection from the Rio Paraguay to the Pacific Ocean.

Pig Iron Production.

The statistics of pig iron production in this country, gathered by the American Iron & Steel Association, and reported in the *Bulletin*, of July 25, gives the output for the first half of 1894 as 2,717,983 gross tons. This is an increase of 156,399 tons over the production for the second half of 1893, but as compared with the first half of 1893 the production in the first half of 1894 shows a falling off of 1,844,935 tons. The production of pig iron in the last twelve months, from July 1, 1893, to July 1, 1894, was

5,279,567 gross tons. In 1892 the production was 9,157,000 tons. Not since the dull year 1885, have we made as little pig iron in one year as in the last twelve months. The number of furnaces in blast on June 30 last was 108, and 408 furnaces were out of blast. Commenting on this fact, Mr. Swank says there is no record in the American iron trade, showing so many furnaces idle. The following table, is compiled from the returns as published in the *Bulletin*, and shows the production in thousands of tons.

	1st half 1894.	1st half 1893.	Dec. %	2d half 1893.	%
Pig Iron.....	2,718	4,563	.40	2,562	.06
Bessemer.....	1,501	2,375	.36	1,194	.25
Steel Ingots.....	1,667	2,092	.20	1,123	.48
Rails.....	399	704	.43	332	.30

The great decline in the production of both Bessemer steel ingots and rails in the twelve months beginning with July 1, 1893, is shown by a comparison of this production with that of the first six months of 1893. In these six months we produced 2,092,057 gross tons of ingots and 704,240 gross tons of rails; in the last twelve months we produced 2,791,083 tons of ingots and 731,517 tons of rails. In no year since 1879 have we made so few steel rails as in the last twelve months.

Taking the output of pig iron according to fuel used, we find the production to have been as given in the following table:

	First half of 1893.	Second half of 1893.	First half of 1894.
Anthracite.....	855,234	492,295	412,047
Charcoal.....	237,240	149,549	102,697
Bituminous.....	3,470,444	1,919,740	2,203,239
Total.....	4,562,918	2,561,584	2,717,983

The stocks of unsold pig iron are given as below.

	Dec. 31, 1892.	June 30, 1893.	Dec. 31, 1893.	June 30, 1894.
Bituminous.....	213,615	244,144	288,528	165,187
Anthracite.....	119,015	120,461	166,359	122,144
Charcoal.....	173,486	184,536	207,181	229,705
Total.....	506,116	549,141	662,068	517,036

BRIDGE BUILDING.

Atlanta, Ga.—The proposed bridge over the tracks of the Central Railroad of Georgia which is one of the features of the proposed extension of Alabama street, is understood to have been practically agreed to by the city officers although the plans for the extension of the street have not yet been finally accepted. The cost of the proposed extension of the street will be nearly \$100,000, a good portion of which will be absorbed in the construction of the bridge.

Baltimore, Md.—The old Blue Bridge on the Baltimore and Ohio, built in 1869, over the Patapsco River, is to be removed and a new double-track steel bridge erected in place of it. The new bridge will be of steel 126 ft. long, 28 ft. wide, and will have six panels, measuring 21 feet and will rest on granite foundations. The Concord Iron Works have the contract for building the bridge. The work is in charge of Chief Engineer William T. Manning, and Engineer of Bridges, J. E. Greiner.

Bellevue, Pa.—The President has signed the bill authorizing the construction of a bridge over the Monongahela River at Bellevue, Pa.

Dubuque, Ia.—President Cleveland has signed the bill to authorize the construction of a bridge across the Mississippi River from Eagle Point, Dubuque, Iowa, to Grant County, Wis.

Elizabeth, N. J.—The House Committee on Interstate and Foreign Commerce has ordered favorably reported the bill of Mr. Dunn, of New Jersey, authorizing the construction of a bridge across Newark Bay, between Elizabeth and Bayonne, N. J.

Lansing, Mich.—The contract for building the bridge over the Grand River on Michigan avenue, Lansing, has been awarded to the Wrought Iron Bridge Co., of Canton, O., at its bid of \$62,500.

Lexington, Mo.—The President has signed the Naval Appropriation bill, authorizing the construction of a bridge across the Missouri river at Lexington, Mo.

Scarboro, Ont.—The Scarboro Council has let the contracts for the new steel bridge over the Rouge River at Milne's Mill. The following bids were received: Hamilton Bridge Co., \$1,474; Dominion Bridge Co., Montreal, \$1,150; Canadian Bridge Co., Montreal, \$1,103 and \$1,250; Central Bridge Co., Peterboro, \$1,114 and \$1,086. The Central Bridge Co. received the contract at its bid of \$1,114.

Scranton, Pa.—City Engineer Phillips has presented the plans for the Linden Street Bridge to Councils. The bridge proper will be 687 ft. in length, and will consist of three spans. One of these spans will be 236 ft. in length, another 210 ft. and the third 221 ft., while there will also be two small girders of 10 ft. each over the piers. The ordinance providing for the erection of this bridge has passed Select Council. The cost of the bridge proper will be \$70,000 and the approaches \$32,096. Plans for the Roaring Brook bridge, which is to be of similar design, are about completed.

Superior, Wis.—The Wisconsin & New Duluth Bridge Co. has been incorporated in Wisconsin by George B. Hudnall, B. E. Yertle, and J. M. McCabe. A bill has been introduced in Congress authorizing the company to build a drawbridge over the St. Louis River.

Warren, Pa.—The commissioners have awarded the contract to the Groton Bridge Co., of Groton, N. Y., for a two-track iron bridge across Glade Run. Part of the cost will be paid by the Warren Street Railway Co.

Winnipeg, Man.—Contracts were let on July 14 for the Maryland Street bridge. Seven bids were received for building an iron bridge and three bids for building a wooden one. The contract was awarded to the Hamilton Bridge Co., of Hamilton, Ont., for an iron structure, at its bid of \$12,500.

Yarmouth, N. S.—The Nova Scotia Development Co. is asking bids on two steel bridges on the line of the Coast Railway of Nova Scotia. One of the bridges will be over Salmon River and the other over Tusket River. Plans and specifications can be seen at the company's office, at Yarmouth, N. S. There are four other large bridges and several smaller ones on the line.

MEETINGS AND ANNOUNCEMENTS.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Canadian Pacific, semi-annual, 2½ per cent. on the common stock, payable Aug. 17.

Chicago Junction Railways & Union Stock Yards Co., 4 per cent. on the common, and 3 per cent. on the preferred stock.

Chicago, St. Paul, Minneapolis & Omaha, 3½ per cent. on the preferred stock, payable Aug. 20.

Lake Erie & Western, 1½ per cent. on the preferred stock, payable Aug. 15.

Rome, Watertown & Ogdensburg, 1¼ per cent., payable Aug. 15.

Stockholders' Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

Chicago, Milwaukee & St. Paul annual, Milwaukee, Wis., Sept. 22.

Wabash, annual, St. Louis, Mo., Sept. 11.

Technical Meetings.

Meetings and conventions of railroad associations and technical societies will be held as follows:

The *General Baggage Agents* will hold their semi-annual convention at Montreal on Aug. 15.

The *Roadmasters' Association of America* will hold its annual convention in New York city beginning Sept. 11 and lasting three days. The first meeting will be held in Tammany Hall and the following ones at the Broadway Central Hotel which will be the headquarters of the Association.

The *Freight Claim Association* will hold its semi-annual meeting in Buffalo, N. Y., on August 8. The headquarters will be at the Hotel Iroquois.

The *New England Roadmasters' Association* will hold its annual convention at the American House, Boston, Mass., Aug. 15 and 16.

The *Western Railway Club* meets in the rooms of the Central Traffic Association, Monadnock Building, Chicago, on the third Tuesday in each month, at 2 p. m.

The *New York Railroad Club* meets at the rooms of the American Society of Mechanical Engineers, 12 West Thirty-first street, New York city, on the third Thursday in each month, at 8 p. m.

The *New England Railroad Club* meets at Wesleyan Hall, Bromfield street, Boston, Mass., on the second Wednesday of each month.

The *Central Railway Club* meets at the Hotel Iroquois, Buffalo, N. Y., on the fourth Wednesday of January, March, April, September and October.

The *Southern and Southwestern Railway Club* meets at the Kimball House, Atlanta, Ga., on the third Thursday in January, April, August and November.

The *Northwestern Railroad Club* meets at the Ryan Hotel, St. Paul, on the second Tuesday of each month, at 8 p. m.

The *Northwestern Track and Bridge Association* meets at the St. Paul Union Station on the Friday following the second Wednesday of March, June, September and December, at 2.30 p. m.

The *American Society of Civil Engineers* meets at the House of the Society, 127 East Twenty-third street, New York, on the first and third Wednesdays in each month, at 8 p. m.

The *Western Society of Engineers* meets on the first Wednesday in each month, at 8 p. m. The headquarters of the society are at 51 Lakeside Building, Chicago.

The *Engineers' Club of Philadelphia* meets at the House of the Club, 1122 Girard street, Philadelphia, on the first and third Saturdays of each month, at 8 p. m.

The *Boston Society of Civil Engineers* meets at Wesleyan Hall, 36 Bromfield street, Boston, on the third Wednesday in each month, at 7.30 p. m.

The *Engineers' Club of St. Louis* meets in the Missouri Historical Society Building, corner Sixteenth street and Lucas place, St. Louis, on the first and third Wednesdays in each month.

The *Engineering Association of the South* meets on the second Thursday in each month, at 8 p. m. The Association headquarters are at The Cumberland Publishing House, Nashville, Tenn.

The *Engineers' Society of Western Pennsylvania* meets in the Carnegie Library Building, Allegheny, Pa., on the third Tuesday in each month, at 7.30 p. m.

The *Technical Society of the Pacific Coast* meets at its rooms in the Academy of Sciences Building, 819 Market street, San Francisco, Cal., on the first Friday in each month, at 8 p. m.

Association of Railway Claim Agents.

The postponement of the annual meeting of this association, which had been called for August 14 at Saratoga, N. Y., is announced by a circular issued by President H. S. Downey, of Galveston, Tex. The meeting will be held at some later date in the year, and the exact date and the place of meeting will be announced probably during September.

Association of Engineers of Virginia.

The regular summer meeting of the Association was held at Alleghany Springs, Va., on Saturday, July 14, 1894. The meeting was called to order by the President, Mr. C. S. Churchill, and Mr. Walter R. Staples, Jr., was elected a member. The president then delivered his annual address and Mr. Staples gave a talk on the Construction of the Canal connecting the headwaters of the Mississippi with the headwaters of the Illinois River.

The address of Col. Craighill before the A. S. C. E. was read and brought out much discussion. That part relating to the construction and control of the Nicaragua Canal received special attention and a resolution was passed instructing the Secretary to communicate with our representatives in Congress urging them to use their influence for the early construction and completion of the Nicaragua Canal and its ultimate control by the United States Government.

Mr. Dunlap read a paper on Municipal Improvements. The paper brought out much discussion which was very interesting. Mr. Wallis gave a talk on "How to Design a Plant" which was both interesting and instructive. The next meeting of the Association will be determined by the Directors and notice given in due time.

PERSONAL.

—Mr. Charles P. Choate, Vice-President of the Detroit Steel & Spring Works, died at Detroit, Mich., on July 28, after a short illness.

—A monument to the late Werner von Siemens is to be erected in Berlin by the Society of German Engineers. Funds are now being collected for this purpose.

—Gen. Wade Hampton, United States Commissioner of Railroads, will begin an official tour of inspection of the Union Pacific and Central Pacific Roads on August 10.

—Mr. H. J. Quigg, formerly Superintendent of the West-

ern Division of the New York & New England has been appointed Superintendent of the Newark Traction Co., in New Jersey.

—Mr. T. Hackworth Young, formerly Assistant to the Chief of the Transportation Department at the World's Fair, died at Sacramento, Cal., July 21, while on his way home, having resigned as Master Mechanic of the Mexican Central.

—Mr. H. J. Page, Traffic Manager of the Elgin, Joliet & Eastern, retired from that position on August 1 to enter into private business. Mr. Page has been Traffic Manager of this railroad since 1889, and was formerly, for over 20 years, General Freight Agent of the Cincinnati, Indianapolis, St. Louis & Chicago and its predecessors, resigning when the consolidation was effected which formed the present Big Four system.

—Mr. B. W. Wrenn, who has been General Passenger Agent of the East Tennessee, Virginia & Georgia for the last 10 years, is now in charge of the traffic on the Memphis & Charleston Railroad. When the new Southern Railway Co. assumed the operation of the East Tennessee Railroad on August 1, Mr. Wrenn was offered the position of Assistant General Passenger Agent of the Western Division which comprises the East Tennessee lines, and would have given him charge of the passenger traffic but he declined to accept it.

—Mr. E. W. McKenna, Assistant General Superintendent of the Chicago, Milwaukee & St. Paul, is to retire from that position on August 15 to accept the General Superintendency of the Great Northern Railroad. Mr. McKenna has been with the Milwaukee & St. Paul road since 1887, as Division Superintendent of its Wisconsin Divisions until 1890 when he became Assistant General Superintendent. He was previously with the Erie Railroad and also the Pennsylvania lines as Division Superintendent and on special service.

—Mr. Charles W. Case, who became General Manager of the Great Northern Railroad last November, has resigned and has been succeeded in that office by Mr. Charles H. Warren, at present the Comptroller of the company. Mr. Case had been connected with the Great Northern since 1888 as General Superintendent, previous to his promotion to the general management, which was made soon after the resignation of Mr. Mohler. Mr. Warren was formerly General Passenger Agent of the company, becoming its comptroller in 1888. He was for a time in the general manager's office at St. Paul as chief clerk.

—Hon. George G. Crocker and Mr. A. C. Burrage have been appointed members of the Boston Transit Commission by the Governor of Massachusetts. The other members of the Commission are C. H. Dalton, George F. Swain and T. J. Gargan. These three were appointed by the city and have held office for some time. Mr. Burrage is only 35 years old; he is a lawyer and a Republican politician "who has always been a supporter of clean men and honest measures." Mr. Crocker is the well known ex-chairman of the State Railroad Commission, having been at the head of the Commission from February, 1887, until January, 1892.

—Mr. Edgar A. Van Horne, for many years a prominent railroad man in Northern New York, died at his home in Oswego, N. Y., August 1, of apoplexy. Mr. Van Horne's first railroad work was as a clerk in the Oswego & Syracuse division of the Delaware, Lackawanna & Western. In 1872 he was Superintendent of the Lake Ontario Shore Railroad. When the Lake Ontario was consolidated with the Rome, Watertown & Ogdensburg, in 1878, Mr. Van Horne was made General Superintendent. In 1883, Mr. Van Horne resigned to take a position as General Superintendent of the Utica & Black River road. He resigned the latter position because of poor health and has since been engaged in the hardware business in Oswego.

—Mr. Thomas S. Wright, of Chicago, General Attorney of the Chicago Rock Island & Pacific, while crossing a street in New York city on Thursday, July 27, was seized with a sudden dizziness and fell to the sidewalk, striking his head so violently on the stone pavement that his skull was fractured. He was removed to the New York Hospital and died during the night, remaining unconscious, except for a few moments. Mr. Wright had only arrived in New York from Chicago on the day previous to this fatal accident. He was about 50 years old and was the son of Judge Wright, of Des Moines. In 1867 he was appointed a local attorney for the Rock Island road at Des Moines and retained that office until 1883, when he became a solicitor for that company for the State of Iowa. In 1889 he became General Attorney, with office at Chicago.

ELECTIONS AND APPOINTMENTS.

Canadian Pacific.—W. A. Kittermaster, Contracting Freight Agent, has been appointed to succeed G. R. Van Norman as District Freight Agent at Detroit.

Central Vermont.—E. W. Thompson has been appointed Superintendent of the Montpelier & Wells River division, with office at Montpelier, Vt.

Chestertown & Easton.—At a meeting of the incorporators in Chestertown, Md., July 25, 1,035 shares of stock were subscribed. The stockholders organized by electing the following directors: John S. Wirt, of Cecil County; Charles T. Westcott, James A. Pearce and Lewin W. Wicks, of Kent; Philip H. Peddeman and J. Frank Harper, of Queen Anne County, and William Goldborough, of Talbot County. Charles T. Westcott was elected President, Lewin W. Wicks Secretary and Emil Thielens Treasurer.

Corsicana & Southern.—At the first meeting held in Corsicana, Tex., July 24, the following directors were elected: J. E. Whiteselle, H. G. Damon, S. W. Johnson, C. W. Coykendall, W. J. McKie and H. E. Kinsloe, of Corsicana; J. L. Stark, of Fairfield; J. C. Gibbons, of Fort Worth and J. A. Woodbury, of Chicago. The directors then met and elected C. W. Coykendall, President; J. L. Stark, Vice-President, and H. E. Kinsloe, Secretary and Treasurer.

Georgia Pacific.—J. N. Ross, in addition to his present duties, has been appointed Acting Superintendent, vice W. B. Ryder, transferred.

Kansas City, Watkins & Gulf.—W. E. Lee, formerly Acting Auditor, has been appointed Auditor with headquarters at Lake Charles, La.

Lehigh Valley.—Richard Caffrey, of South Bethlehem has been restored to his old position as General Roadmaster. Since the Reading lease he has been a Supervisor.

Oregon Railway & Navigation Co.—The following changes have been announced on this road: The Washington and Oregon divisions have been consolidated and A. J. Borie has been appointed Superintendent of the railroad lines. The office of General Superintendent, held by R. W. Baxter, has been abolished and the duties will be performed by the General Manager. E. S. Benson has been appointed General Auditor for the Receiver; B. Campbell has been appointed General Freight Agent, and F. F. Connor formerly Passenger Agent of the Chicago, Milwaukee

and St. Paul at San Francisco has been appointed General Agent with headquarters at San Francisco, Cal.

Pullman Palace Car Co.—R. J. Owens has been appointed superintendent with headquarters in the City of Mexico, vice Robert Butters, promoted.

Seaboard Air Line.—William J. Harding, late of the Baldwin Locomotive Works, has been appointed chief draftsman of the Seaboard Air Line with headquarters at Raleigh, N. C. Mr. Harding is a native of Raleigh and a son of Mr. B. R. Harding, who for many years was Master Machinist of the shops at Raleigh.

Sedalia, Warsaw & Southwestern.—Thomas F. Mitchum, who was recently appointed Receiver to succeed J. C. Thompson, has taken charge of the property and announces the appointment of George W. Inge, as Superintendent and Auditor, under direction of the Receiver, with headquarters at Sedalia, Mo.

Southern Railway Co.—A circular has been issued by Samuel Spencer, President of the Company, announcing that from August 1, the lines of the East Tennessee, Virginia & Georgia, the Charlotte, Columbia & Augusta and of the Columbia & Greenville (not including the Blue Ridge Railroad or the Laurens Railroad), will be operated by the Southern Company. The jurisdiction of the following officers will be extended over these lines: A. B. Andrews, Second Vice-President, at Raleigh, N. C.; William H. Baldwin, Jr., Third Vice-President, at Washington, D. C.; and Sol Haas, Assistant to the President; John M. Culp, Traffic Manager; W. A. Turk, General Passenger Agent; George S. Hobbs, Auditor; Harrie C. Ansley, Acting Treasurer, and Joseph P. Minette, Purchasing Agent, all at Washington.

After August 1 the lines of the Southern Railway Company will be operated in two systems, the Eastern system comprising the Richmond & Danville, the Charlotte, Columbia & Augusta and the Columbia & Greenville Railroads, and the Western system including the East Tennessee, Virginia & Georgia and the Knoxville & Ohio. The following new appointments are made: W. H. Green, General Manager of the Eastern system, at Washington, D. C.; C. H. Hudson, General Manager of the Western system, at Knoxville, Tenn.; James H. Drake, General Freight Agent of the Eastern system, at Richmond, Va.; Edwin Fitzgerald, General Freight Agent of the Western system, at Knoxville, Tenn.; William Hawn, Assistant Auditor, at Knoxville, Tenn. and J. N. Mitchell, Assistant Treasurer, at Knoxville, Tenn.

B. W. Wrenn, General Passenger Agent of the East Tennessee, Virginia & Georgia road having declined service with the Southern Railway Company, an Assistant General Passenger Agent will be appointed later for the Western System. The General Managers and the Purchasing Agent will report to the Third Vice-President. The General Freight Agents and the General Passenger Agent will report to the Traffic Manager.

W. H. Green, as General Manager of the Eastern Division of this company has assumed charge, as General Manager, of the operating department of the Charlotte, Columbia & Augusta and Columbia & Greenville railroads (not including the Blue Ridge Railroad and Laurens Railroad).

W. B. Ryder has been appointed Superintendent of the Charlotte, Columbia & Augusta, Columbia & Greenville, Western North Carolina, Asheville & Spartanburg and Spartanburg, Union & Columbia Railroads, with office at Columbia, S. C. That portion of circular of July 4, temporarily extending the jurisdiction of J. A. Dodson, Superintendent, over the Asheville & Spartanburg and Spartanburg, Union & Columbia Railroads; and E. Berkeley, Superintendent, over the Western North Carolina Division, is revoked.

Washington County.—The incorporators of this railroad in Maine have called a meeting to effect an organization. The following are among the incorporators named in the charter granted by the last legislature: S. N. Campbell, W. M. Nash, Cherryfield; Frank W. Sawyer, Milbridge; V. L. Coffin, Harrington; Horace M. Leighton, Columbia Falls; F. A. Chanoler, Addison; John L. Ames, J. F. Lynch, Machias; S. D. Leavitt, N. B. Nutt, C. A. Paine, Eastport; G. A. Curran and L. G. Downes, of Calais.

RAILROAD CONSTRUCTION, Incorporations, Surveys, Etc.

Blue Mountain.—W. C. Mayne, of Philadelphia, is attorney for this company, which proposes to build a road along the route of the old South Mountain project, from Harrisburg to Hamburg, Berks county, with an extension from Straoustown to Reading, Pa. Engineers under Robert Frazer began a survey at Reading, July 30, toward Harrisburg. Mr. Mayne gives the names of the following Philadelphia business men as interested in the railroad enterprise. Clinton Rohrer, President of the Farmers & Drovers' Stock Co., Chestnut Hill; Simon R. Snyder, President of the Snyder Harris & Bassett Co.; Kensil Wills, of Kensil Wills & Brother, real estate; Frank Crenon and W. E. Camp, Directors in the Millard Cracker Co. James Clark will be Superintendent of Construction. The Pennsylvania Midland has been recently chartered to build over the same route, but the officers profess not to fear any serious position will come from that company.

Brady's Bend & Butler.—The organization of the company formed by J. D. Gillette, of 2 Wall street, New York, to build this railroad and to develop the coal lands secured by his purchase of the property of the Brady Iron Co., is going ahead rapidly. The president of the new company will be C. O. Billings, of Boston, who has resigned his office as President of the Globe National Bank of that city to give his time to promoting the interests of the new company. The railroad will not be more than 12 miles long, starting from Brady's Bend on the Allegheny River opposite East Brady, and extending northwest to Butler, Pa. The railroad will be built by the Brady's Bend & Butler Railroad and the other operations of the company will be carried on by a corporation called the Brady's Bend Phenix Co., Mr. Billings being president of both companies.

Buffalo & Susquehanna.—It is expected that trains will be running on the extension from Galeton to Ansonia, Pa., by September 1. The road is now ready for the rails nearly the entire distance to Ansonia. The bridge piers are completed across Pine Creek and the south branch at Galeton, and will be finished at the Watrous crossing in a few days.

Burlington & Missouri River.—It is now announced that the extension of the Burlington system being built from Sheridan, Wyo., to Billings, Mont., will be completed and ready for operation by September 15.

Cape Cod South Side.—This company has been incorporated in Massachusetts to build the proposed railroad from Falmouth east to Hyannis, a distance of 15 miles. The incorporators are F. W. Parsons, of Osterville, Mass., Charles H. Nye, formerly Superintendent of the Cape Cod

Division of the Old Colony, W. N. Kellen, S. L. Leonard, Boston, and Frank A. Nye, of North Falmouth, Mass.

Chicago, Iowa & Dakota.—The recent change in the management of this railroad, which operates 27 miles of railroad between Eldora and Iowa Falls, Ia., has been followed by apparently authoritative statements that plans for the extension of the railroad from the latter town are under consideration, and that some of the new work may be carried out this year.

Chicago & Milwaukee Terminal & Belt Line.—An account is printed in Milwaukee papers of another belt line project at Milwaukee in addition to the two or three already organized to build a terminal system at Milwaukee. The new company has been organized under the above name with a capital stock of \$6,000,000 and among the Milwaukee people interested are given the names of Frederick Pabst, Burnham Brothers and the Pfister & Vogle Leather Co. It is claimed that land for yards beyond the southwestern limits of the city has already been purchased and the railroad as proposed is to extend through the southern portion of the Menominee Valley parallel to the tracks of the Milwaukee road and along the South Menominee Canal to the inner yards located near the present south yards of the Chicago, Milwaukee & St. Paul and Chicago & Northwestern railroads. This company is a distinct corporation from the Milwaukee Belt & Terminal Railroad which has recently filed a mortgage for \$2,500,000.

Choctaw Coal & Railway Co.—The reorganization of the company, as noticed last week, has been adopted by the creditors and will be carried out without delay. As also previously noted, this plan provides for the immediate building of the line into Oklahoma City. This will require the construction of over 120 miles of railroad west of South McAlester, the terminus of the present Eastern Division, to Oklahoma City. The Western division extends from the latter town to El Reno, connecting the St. Louis & San Francisco and Rock Island Roads. It is now said that bids for this construction work will be invited in a few weeks. It is proposed to secure a charter from Congress for the reorganized company, and a bill for this purpose has been drafted. The present company has a charter from the State of Minnesota.

Coast Railway of Nova Scotia.—The line has been located and plans approved by the provincial engineer for the first 25 miles from Yarmouth, N. S. Three parties of engineers are now in the field, completing the preliminary survey and location, which will be finished by September 1. The contract for building and equipping the entire line has been given to the Nova Scotia Development Co., of Yarmouth, N. S.

The officers of the company are Leonard Atwood, Philadelphia, President; John A. Brill, of the J. G. Brill Car Co., Philadelphia, Vice-President; Percy S. Bickmore, Philadelphia, Secretary; George A. Fletcher, Philadelphia, Treasurer, and A. H. Chadbourne, 29 Broadway, New York, Superintendent of Construction. The road will be 90 miles long, extending from Yarmouth to Lockeport, via Tusket, Pubnico, Barrington and Shelbourne. The company has, at present, about 200 laborers at work, and that force will soon be increased. About three miles have been graded, and it is intended to have the road completed to Tusket, ten miles, by October 1. The general character of the work is comparatively easy. Maximum grades, 79 feet to the mile; maximum curves, 10 degrees. There will be two steel bridges on the first ten miles, one over Salmon River and one over Tusket River. A large force of men will be put to work next spring, and the entire work completed by the latter part of 1895. The road will be of 3 ft. gage. The officers of the railroad are Thomas Robertson, Barrington, N. S., President; J. N. Noblit, Philadelphia, Treasurer; S. D. Pettit, New York, Secretary; the New York Representative is A. H. Chadbourne, 29 Broadway.

Corsicana & Southeastern.—The contract for building the railroad from Corsicana to Fairfield and Buffalo, Tex., about 100 miles, is reported let to the firm of Roche, Tierney & Co., of Fort Worth, Tex. Engineers are now making a new survey for the line southeast of Corsicana. C. W. Coykendall, of Corsicana, Tex., is President, and H. E. Kinsloe of Corsicana, Tex., is Secretary.

Cumberland Valley.—This company has, through its leased line the Southern Pennsylvania Railway & Mining Co., secured by condemnation several sections of the graded roadbed of the old South Pennsylvania project between Harrisburg and Mt. Dallas. It has now begun proceedings to secure the section from Riverton to the east bank of the Susquehanna river which will enable it to secure a new entrance to Harrisburg for its freight traffic and avoid sending freight trains through the Union station in that city. The acquisition of this right of way will secure the piers for the bridge over the Susquehanna river. The company proposes to complete the bridge, making a new connection with its line at White Hill and the Pennsylvania tracks in Harrisburg, the work including the building of an elevated roadway in the city. The petition will come up for review before the court at Carlisle in August.

Dakota, Wyoming & Missouri River.—The people of Rapid City, S. D., are very anxious to secure the construction of this railroad east of that city this year and are making considerable sacrifices in waiving claims against the railroad in order to help it to a better financial standing. They also expect to arrange with the foreign creditors for an extension to enable the company to complete and put in operation a part of its railroad. President W. T. Coad, of Rapid City, has made a proposition to these creditors which it is hoped will be accepted by them so that the work east of Rapid City can be begun at once.

Drummond County.—During the present summer little construction work has been done on the extension from St. Leonard to a junction with the Intercolonial at Levis, opposite Quebec. Now that the Dominion Government has granted a subsidy of \$96,000, work will be resumed at once. Charles Church, of Drummondville, Que., is President. The road in operation at present is 64 miles long. The extension branches off at St. Leonard Junction, 50 miles from St. Hyacinthe, and will reach Levis by a line of 75 miles, of which ever 20 miles has been graded.

Esquimaux & Nanaimo.—It is announced that a start will be made in August for the extension of this road from Nanaimo to Comox, 60 miles along the eastern shore of Vancouver Island. Contracts will be let in sections of five miles.

Fort Plain & Richfield Springs.—Much doubt has been expressed as to whether this new railroad in New York State would be built this summer, but construction material is now arriving at Fort Plain and a body of Italians are to work on the road. The surveyors have nearly completed their work and ties are now being laid along the proposed route from Fort Plain to Richfield Springs, about 30 miles. The company was organized several years ago by W. Clark, of Fort Plain, N. Y.

Gulf, Beaumont & Kansas City.—The trains of the company are now running into the new lumber town of Buna in Jasper County, Tex., about 40 miles north of the southern end of the line at Beaumont, Tex. The railroad would have had its trains running into Buna some weeks ago but for the delay in completing the iron drawbridge across the Neches river.

Lake Street Elevated (Chicago).—The plans for the northwestern extension of the Lake Street Elevated road have been finally approved by the Chicago city authorities, and it is expected that work will begin soon on the new division of the road. The extension branches off the main line at Western and Artesian avenues.

Long Island.—The company has made arrangements for the completion of the extension from Port Jefferson east to Wading river on Long Island, 11 miles. The work was abandoned several months ago by the firm holding the contract. The work has been relet to Hawman Bros., of Reading, Pa., who built the New York Bay branch for the company in 1893.

Montana Midland.—R. A. Harlow, of Helena, Mont., the Vice-President of this railroad, and who has been its most active projector, has recently returned to Montana from a visit to the East. He states that he was able to make such arrangements while East, that the construction work beyond the Missouri river will be resumed within a few weeks, and he hopes to complete most of the line to the mineral lands in southeastern Montana, to which the railroad is projected, before the end of the year. The railroad is now graded for about 20 miles from Helena east to Cañon Ferry at the Missouri river and also from Whitehall. The coal fields to which the railroad is to be built are on the Upper Ruby river, southeast of Helena, about 80 miles from that town.

New Roads.—Capt. William Ingles, a civil engineer of Radford, Va., is reported to have recently completed the survey for a branch road from the line of this company at a station about 25 miles from Radford, and extending through the timber property of the Mountain Lake Co. for a distance of 12 miles. The branch will cross New river by a substantial bridge soon after branching off from the Norfolk & Western.

Ottawa, Arnprior & Parry Sound.—Two thousand men are at work on this road pushing it through to Parry Sound, Ont., as rapidly as possible. There are now 35 miles under contract west of Killaloe, Ont., to which point trains run. It is proposed to complete 11 miles this fall and there will then remain 70 miles to finish the road to the Soo. It is expected that the construction work will be completed next season. The contractor for the work is E. Fauquier. The sub-contracts have been let for seven sections, the following being the sub-contractors: Section No. 1—B. N. Slater; 2—J. O'Brien; 3—W. Heald; 4—O'Neill & Ferguson; 5—E. Fauquier; 6—W. Heald; 7—Mr. Burford.

Pennsylvania.—Engineers under C. S. D'Invilliers have arrived at Johnstown, Pa., and are surveying the proposed branch from the main line into the Somerset County coal fields via Moxham.

Pennsylvania Midland.—Contractor E. A. Tennis, of Thompsonstown, Pa., who is building this railroad, now states that the main line will be completed early in September and will be ready for operation by November 1. This portion of the railroad is from Senesta Station on the Pennsylvania to Brook's Mills in Blair County, Pa., about 23 miles. Besides the main line a branch road has been located from Osterburgh crossing to the Allegheny Mountains with a maximum grade of 85 ft. to the mile into Somerset County where the projectors of the railroad own large coal fields. The branch will be 18 miles long and will not be completed until after January next.

Quebec, Montmorency & Charlevoix.—The extension of this road from St. Anne east to St. Joachim, near Cape Tourment, is now under way and it is expected will be completed in about two months.

Salt Lake & Mercur.—This company has been incorporated in Utah to build a railroad from Fairfield on the Union Pacific to the mines of the Mercur Mining Co. The road will be built to facilitate the shipping of ore from the mill to the Union Pacific. The preliminary surveys have been made and a party of engineers are now making the permanent location from Fairfield. The road will be of standard gage. The first three miles to the mill will have a grade of three per cent. and from the mill to the mine the grade will be about four per cent. The total distance from Fairfield to the mine will be nine miles. A. A. Noor, of Provo, is President. Joseph G. Jacobs, of Salt Lake City, Vice-President, and John J. Stewart, of Salt Lake City is Secretary and Treasurer. These, with H. G. McMillan of Salt Lake City, and Reed Smoot, of Provo, comprise the Board of Directors.

San Antonio & Gulf Shore.—S. Massey & Co., who had the contract to build the first 30 miles of this railroad, from San Antonio, Tex., have given up the contract. President William Davis says that the work will be pushed to completion under his own direction.

Sandersville.—The new railroad from Tennille to Sandersville, Ga., which was incorporated late last year by local people, will be finished within a week. The line is only three miles long, but the towns are already reached by a branch of the Augusta Southern. Dissatisfaction with the train facilities over this branch induced some of the business men of the towns named to form a new company to connect the places by a new railroad. Lewis Cohn is president of the new line.

Southern Pennsylvania Railway and Mining Co.—Judgment has been entered in favor of the Southern Pennsylvania Railway and Mining Co., for the amount of the damages assessed by the viewers appointed by the Court of Common Pleas of Fulton County, Pa., to assess the damages sustained by the South Pennsylvania Railway Co., for lands taken by the Southern Pennsylvania Railway & Mining Co. The lands condemned extend from Mount Dallas, in Bedford County, to the Franklin and Cumberland county line, a distance of 51 miles, and embraced the roadbed of a portion of the old South Penn. Railroad. The Southern Pennsylvania Railway & Mining Co. will extend its line north from Richmond Furnace, Franklin County, to the Tuscarora tunnel; thence west, along the lands condemned, to Mount Dallas, where it will connect with the Bedford division of the Pennsylvania Railroad. From the Tuscarora tunnel east a branch will be built to intersect the Cumberland Valley Railroad at or near Newville.

Sturgis Belt Line.—This road has been surveyed and located through Union County in Kentucky, to reach the coal mines in that county. Work will be commenced in a short time, and pushed rapidly to completion. Caseyville, on the Ohio River, will be the western terminus. At Sturgis the new road crosses the Ohio Valley Railroad.

Weiser & Northern.—A party of Duluth capitalists including W. B. Merritt, Alfred Merritt, Leonidas Merritt, N. B. Merritt, Frank Merritt, H. S. Fly, J. J. Richardson, Thomas Landlands and A. J. Tallon have arrived in Weiser, Idaho, and will make an inspection trip over the proposed route of this road, which if satisfactory will result in arrangements for completing it. The road was incorporated in Idaho in 1892, and has been located from Weiser north about 50 miles. The surveying party under George Mix are now surveying towards the Seven Devils Mining District in Idaho. T. C. Galloway, of Weiser, Idaho, is President.

Wichita Falls.—A. D. Thurston, of Parsons, Kan., an engineer of the Missouri, Kansas & Texas, is in charge of a surveying party now engaged on the preliminary survey for this railroad recently incorporated in Texas. The line is to be a branch road about 20 miles long from Henrietta, northwest to Wichita Falls.

GENERAL RAILROAD NEWS.

Atlantic & North Carolina.—This road, which extended from Goldsboro, N. C., to Morehead City, N. C., and is controlled by the State of North Carolina, has, for the second time this year, declared a quarterly dividend of two per cent.

Baltimore & Lehigh.—The proposed sale of the Pennsylvania section of this railroad is being opposed by the minority security holders and last week argument was heard before Judge Butler in the United States Circuit Court, at Philadelphia, upon a motion to have the sale enjoined. W. F. Walworth, of Cleveland, holds a judgment for over \$261,000 and the minority party is seeking to have this judgment declared void. Judge Butler has decided not to enjoin the sale.

Boston & Albany.—The results of operation for the fiscal year ending June 30 last were issued this week in advance of the complete annual report. The comparisons with 1892 follow:

	1894.	1893.	Inc. or Dec.
Passenger	\$3,902,725	\$4,240,029	D \$337,304
Freight	4,046,900	4,888,349	D 841,449
Mails, etc.	1,240,652	1,047,497	I 193,155
Total earn	\$9,190,277	\$10,169,875	D \$979,598
Oper. expen.	6,720,288	7,750,089	D 1,029,801
Net earn	\$2,469,989	\$2,419,786	I \$50,203
Fixed charges	2,459,410	2,390,900	I 68,510
Surplus	\$10,579	28,886	D \$18,307
Total surplus	161,694	151,115	I 10,579

Expenditures for repairs and improvements were charged to operating expenses except \$200,000 carried to next year on account of third and fourth tracks.

The chief decreases in operating expenses were made in the accounts of maintenance of cars, engines and buildings, over \$794,000 being saved in these accounts, of which over \$450,000 was in maintenance of cars. The cost of maintenance of way was \$1,466,882, or \$170,000 less than in 1892.

Cape Fear & Yadkin Valley.—Judge Simonton, of the United States Circuit Court, has filed an opinion confirming the appointment of Gen. John Gill, of Baltimore, as Receiver of the Railroad. General Gill was appointed at the request of the first mortgage bondholders of the road and action was brought by the North State Improvement Co. to have the receivership vacated as told last week.

Central Vermont.—The chancery proceedings of the Grand Trunk Railway Company against the Central Vermont Railroad and Directors are to be discontinued by agreement, the action of the latter company authorizing an increase of capital stock having been revoked.

Chattanooga, Rome & Columbus.—Judge Newman, of the United States court at Atlanta, Ga., last week appointed R. C. Alston, commissioner to sell this railroad, which is now in the hands of a receiver. The road extends from Carrollton to Chattanooga, and has been operated as a branch of the Central of Georgia. The date of the sale is to be fixed by the commissioners, but it will take place in Rome, Ga.

Chattanooga Southern.—The foreclosure sale under the first mortgage bonds has been definitely set for October 21, and this date has been confirmed by Judge Newman, of the United States Court in Georgia. The bondholders who have succeeded in having the date of the foreclosure sale postponed several times have agreed to this date and will not seek further adjournment.

Chautauqua Lake.—This railroad was purchased at the foreclosure sale by W. M. Barnum, representing President H. W. Cannon, of the Chase National Bank, of New York, in the interest of the first mortgage bondholders. The sale took place at Mayville, N. Y., on July 5, and the purchase price was \$100,000. Receiver Griggs will continue to operate the road for some time.

Chesapeake & Ohio.—The following preliminary statement of the earnings of the company for the year to June 30 has been published:

	1894.	1893.	Dec.
Gross earn	\$9,044,108	\$10,349,765	\$1,305,657
Oper. expen.	6,027,127	7,146,831	1,119,794
Net earn	\$3,016,981	\$3,202,934	\$185,863

Chicago, Burlington & Quincy.—The statement for the month and six months ended June 30, shows for the month a loss in freight earnings of \$584,352, and a loss in passenger earnings of \$351,625, while for the half year the decrease in these items is \$2,753,760 and \$1,021,604 respectively. After deducting expenses and interest charges there was a balance of \$1,958 for the month as against \$239,624 in June last year. Comparative figures follow:

	May, 1894.	1893.	Dec.
Gross earn	\$1,333,448	\$3,292,679	\$929,231
Oper. expen.	1,561,490	2,229,875	668,385
Net earn	\$801,953	\$1,062,804	\$260,846
Fixed Charges	800,000	822,881	22,881
Balance	\$1,958	\$39,923	237,965
Jan. 1 to May 31—			
Gross Earn	\$15,160,139	\$18,976,000	\$3,815,870
Oper. Expenses	9,852,999	13,161,902	3,308,993
Net Earn	\$5,307,230	\$5,814,107	\$506,877
Fixed charges	4,800,000	4,937,285	137,285
Balance	\$507,230	\$876,822	\$369,592

Columbia, Newberry & Laurens.—The transfer of this property from the officers of the Seaboard Air Line, which has operated the railroad for the last year, to the officers of the Atlantic Coast Line, which will operate it during the coming year, was made about July 1. This railroad extends from Columbia to near Clinton, S. C., 65

miles, and is leased by the two companies named above, the lease requiring that the road shall be operated by each of the lessees in alternate years. The operation of the road enables the Atlantic Coast Line to run trains through from Charleston to Clinton, with a through car attached for Atlanta. Last year the Seaboard Air Line ran its through trains to and from Atlanta over this railroad.

Delaware River & Lancaster.—A force of men is at work along the French Creek branch of the railroad making repairs to the road-bed so that train service can be resumed. Traffic on the road, which extends from Phoenixville, Pa., to Falls of French creek, was abandoned six months ago, but it is reported that the Wilmington & Northern Company has again leased it.

Elgin, Joliet & Eastern.—An agreement has been made by this company with the Louisville, New Albany & Chicago by which it secures trackage rights over the latter line from between Dyer and Hammond, Ind. The contract is for 49 years and the company is to commence running its freight trains into Hammond by December 1. An agreement is now being made with the Belt Railway of Chicago for the right to run over that company's tracks from Hammond into Chicago, and it is believed that the contract with that company will soon be arranged. The Elgin, Joliet & Eastern is now erecting several large grain elevators at the docks at South Chicago.

Flint & Pere Marquette.—The Michigan Circuit Court, of Port Huron, Mich., has recently made a decision allowing the company to abandon the branch road between Yale and Zion, Mich., about 13 miles, which connected two of its divisions. The order provides that the local citizens between these stations who subscribed to the bonus received by the Port Huron & Northwestern for this branch shall have the amount of their subscription returned to them. This line is a branch of the Port Huron & Northwestern, a narrow gage road purchased by the Flint & Pere Marquette some years ago. The branch was abandoned by that company soon after the purchase. A suit was begun to compel the company to operate the branch, but the company then asked the Circuit Court for authority to discontinue the operation of the railroad, which has just been granted.

The next dividend on the preferred stock of this company will be passed. The directors report that the company has earned its operating expenses and interest, but has failed to earn the dividend. Last year the company declared a dividend of two per cent., but a larger dividend has been declared in previous years.

Mexican Southern.—The meeting of this company was held on July 13, in London, and the Directors reported that the first year's working of the line had resulted in a loss of \$9,504, which they ascribed to the fall in the value of silver and the exceptional severity and duration of the rainy season in Mexico last year. The extraordinary repairs to the line caused by slides and washouts during the rainy season amounted to \$12,009. This does not represent the entire cost, as the traffic was for a long time much impeded and for a considerable period was stopped altogether. The line has been thoroughly repaired and necessary protective works have been carried out which it is hoped will prevent a recurrence of the serious damage of last year. In spite of the many difficulties caused by the fall in the value of silver, the traffic is improving. The gross receipts up to June 14 of this financial year, amount to \$103,918, as against \$77,002 for the corresponding period of last year, or 35 per cent. increase, and the traffic is constantly growing. The company had on hand March 31, 1894, the following equipment: seventeen locomotives; 20 passenger cars; 3 baggage cars, and 292 freight cars. For the year the general working results show as follows: Line in operation 366.6 kilometres. Receipts per kilometre \$1,098.97. Train kilometres run 443,733. Receipts per train kilometre \$0.91. Number of passengers carried 159,781. Tons of goods carried 30,482.

Northern Pacific.—The Adams-Fitzgerald reorganization committee announces that a majority of the third mortgage has been deposited with the committee. The committee calls the attention of bondholders to the facts that, while the second and third mortgages cover only the so-called main line of 2,136 miles, the consolidated mortgage, though a junior lien on the same main line mileage, also holds the first lien on branch lines of 1,184 miles, and in addition thereto 36 per cent., or \$5,080,000 out of \$13,977,000 of first mortgage bonds on other branch roads of 614 miles, which is 36 per cent., or 224 miles, thus constituting for the consolidated mortgage bonds a total first lien mileage of 1,408 miles. The committee urges that prompt and united action by the three classes of main line bondholders represented by it will secure important economies, and may result in the control of the property by the mortgage creditors for a longer or shorter period after reorganization.

Oregon Pacific.—In the Circuit Court at Corvallis, Or., the sale of the railroad was postponed till September. The court convened on July 20, to set a new date for the sale of the road, but decided to postpone any action.

Oregon Railway & Navigation Co.—Receiver McNeil has asked the United States Court for authority to issue \$750,000 in receiver's certificates in order to raise funds to pay wages and make betterments on the road and repair washouts along the Columbia River.

Pennsylvania.—The statement of earnings of Eastern lines for June is as follows:

	1894.	1893.	Dec.
Gross earn	\$4,162,279	\$5,782,460	\$1,620,181
Oper. expen.	3,337,428	4,352,535	1,015,107
Net earn	\$824,851	\$1,429,925	\$605,073

Net earnings in 1892 were \$1,163,443; and in 1891, \$1,357,574. Gross earnings of Western lines in June decreased \$1,164,401 and net earnings decreased \$653,350, making a decrease in gross earnings for the system of \$2,784,582 and net decrease \$1,258,423.

For six months Eastern lines show:

	1894.	1893.	Dec.
Gross earn	\$26,248,771	\$33,886,011	\$7,637,240
Oper. expen.	19,378,059	25,050,551	\$5,672,492
Net earn	\$6,870,713	\$8,835,460	\$1,964,747

Net earnings in 1892 were \$8,857,432 and in 1891 \$9,008,079. For six months gross earnings of Western lines decreased \$4,636,365 and net earnings decreased \$1,734,843.

Pennsylvania Co.—The suit of the city of Steubenville, O., which held 1,275 shares of the stock of the Pittsburgh, Cincinnati & St. Louis Railroad, which it refused to exchange for the stock of the reorganized company, has been compromised by the Pennsylvania Railroad for \$50,000. It is stated. The city, as a dissenting stockholder, sued for a judgment for the actual value of the stock, but during the last session of the Ohio Legislature an amendment to the statute governing such cases was passed giving dissenting stockholders the right to claim only the market value of stock.

Peoria, Decatur & Evansville.—The first mortgage Bondholders Committee of the Company has declared the agreement dated April 3, 1893, effective and has directed its counsel to cause foreclosure proceedings to be commenced under the first mortgages of both the Peoria, or Main Line Division, and the Evansville Division.

Philadelphia & Reading.—The operations of the railroad company for June are reported in the following table:

	1894.	1893.	Dec. or Inc.
Gross earn.	\$1,997,306	\$2,024,748	D \$27,442
Oper. expen.	1,020,459	1,172,887	D 152,428
Net earn.	976,847	851,861	I 124,986
Other income.	59,851	76,310	D 16,456
Total income.	\$1,036,698	\$928,171	I \$108,527
Fixed charges.	884,953	798,784	I 86,169
Surplus.	\$151,745	129,387	I \$22,358

For the seven months of the fiscal year the railroad company reports a deficit of \$1,196,264. Out of earnings there was paid this year \$718,152 for equipment (a decrease of \$228,409), \$350,000 for terminal trackage (an increase of \$200,000) and \$111,345 for improvements (an increase of \$103,720).

The Coal & Iron Co. reports for June gross earnings of \$2,348,983, an increase of \$250,683 and a surplus of \$89,532, against a deficit of \$93,132 in 1892. The returns of both companies for the month show a gross increase of \$278,124, a net increase of \$321,539 and a surplus after charges of \$241,277, an increase of \$205,023.

Richmond, Nicholasville, Irving & Beattyville.—The order directing the foreclosure sale of the railroad in Kentucky has been suspended, and the sale is postponed pending an appeal in the case of the Central Trust Company of New York.

Rockaway Valley.—The petition for the appointment of a receiver for this company was filed in New Jersey last week by a dissatisfied stockholder, formerly one of the officers of the company. The suit was opposed by President J. N. Pidcock, who stated that he represented \$350,000 out of the \$400,000 of the stock issued. The earnings of the company are increasing, he said, and there was no justification for the present suit. Chancellor Magill appointed Ex-Governor G. L. Ludlow, of New Jersey, receiver for the three companies which form the line from White House to Hunterdon, N. J., near Morristown. These are the Rockaway Valley, nine miles, which has a debt of \$200,000; the Rockaway Valley & Morristown, seven miles long, with \$125,000 debt, and the Rockaway & Mendham Extension, five miles with \$75,000 debt. Some of these mortgages are held by President Pidcock and one is held by a Jersey City bank. The petitioners claim that the company has no funds in its treasury, that the railroad has been leased to the Rockaway Valley Construction Co., which was in the hands of a receiver and without assets, and that the railroad property is in bad repair.

Texas Western.—This railroad is to be operated by R. A. Campbell, a former Master Mechanic of the Houston, East & West Texas Railroad, under a lease recently made by the owner of the property, Mr. Elijah Smith, of Boston. Trains have not been running on the road since last March, when one of the Texas courts ordered a suspension of traffic on account of the dangerous condition of the roadbed. The line extends from Houston west to Sealy, 53 miles, and two years ago was paralleled by the Missouri, Kansas and Texas building its line into Houston. The road is now being reconstructed by Mr. Campbell, and the work includes the putting in of new ties on the entire road and the repair of the bridge over the Brazos River.

Toledo, Ann Arbor & North Michigan.—A short time before the road went into the hands of a receiver, in April, 1893, the company bought from Post, Martin & Co. 1,000 freight cars and 10 locomotives for about \$600,000. Car Trust security was given on the rolling stock bought and the company also undertook to give Post, Martin & Co. a lien on the old equipment of the company, valued at some \$300,000 or \$400,000, Post, Martin & Co. assuming the balance of \$60,000 due on that equipment. The bondholders have maintained that the railroad company had no right to give a lien on this equipment prior to the lien of the mortgage securing the bonds, and Judge Ricks has rendered a decision in favor of the bondholders, which entirely releases this equipment from the lien of the car trust. The court has also ordered the receiver to return 500 cars and five locomotives to Post, Martin & Co. on August 1, and the other half of the equipment on August 15, and no more regular payments will be made on the car trust. A master has been appointed to determine what amount is equitably due to Post, Martin & Co.

Union Pacific.—Judge Sanborn, of the United States Circuit Court, in the petition of the Union Pacific receivers asking for instructions as to the continuance of the operation of certain lines, has decided that the receivers continue the operation of the Carbon Cut-off Railway and the Omaha & Republican Valley. The receivers are to continue the operation of the Salina & Southwestern, the Kansas City & Omaha, the Atchison, Colorado & Pacific, the Atchison, Jewell County & Western and the Kansas Central Railroad until further decision, set for hearing November 15. William B. Cornish is appointed a Master to investigate the allegations in the petition, to ascertain whether readjustments of traffic rates cannot be made so as to permit the roads to earn operating expenses. The deficiencies are to stand as valid obligations against the respective railroads until further order of the court, and shall be repaid from any future surplus earnings. The same Master is to ascertain the deficiency of the Denver, Leadville & Gunnison, and what portion should be charged as a lien against the property. The hearings are to begin August 15, at the office of the Master, in Omaha, and his reports must be filed by October 15, and a hearing be heard before the court November 15, in St. Paul.

Messrs. J. Pierpont Morgan, John A. Stewart, Edward King, E. Ellery Anderson, and Alexander E. Orr, the committee under the Trust indenture, of September 4, 1891, have addressed a circular to the holders of the six per cent. collateral trust notes issued under that indenture and maturing August 1, 1894, explaining the present position of those notes. The trust deed provided for a possible issue of \$24,000,000 in notes. Of this amount only \$18,710,000 were issued, and \$7,486,000 were redeemed at various dates from sale of collateral, leaving \$1,224,000 notes now outstanding. The receivers of the Union Pacific have regularly deposited with the trustees of this loan the monthly installments of interest. The receivers have agreed with the committee that they will continue to provide for the interest, by monthly installments, as above stated. In the opinion of the committee the collateral held for these notes is more than adequate for their ultimate liquidation. Under these circumstances the committee advises the noteholders not to press the collection of the principal at present.

The report of earnings for May, issued last week, continues the story of heavy decreases in gross and net earnings. The table for the system and several of the divisions are given below:

	1894.	1893.	Dec.
Month of May.	\$2,533,201	\$3,454,118	\$920,896
Gross earn.	2,159,906	2,492,857	332,951
Oper. expen.			
Net earn.	\$373,315	\$901,260	\$527,944

Since Jan. 1.	\$11,779,987	\$15,843,516	\$4,063,529
Gross earn.	9,478,795	11,435,569	1,926,773
Oper. expen.			
Net earn.	\$2,301,192	\$4,437,947	\$2,136,754

	1894.	1893.	Dec.
Month of May.	\$1,188,714	\$1,510,993	\$322,278
Gross earn.			
Net earn.	\$239,551	\$525,048	\$285,496
Since Jan. 1.	\$5,377,512	\$6,975,702	\$1,598,190
Gross earn.			
Net earn.	\$1,382,783	\$2,420,467	\$1,037,683

	1894.	1893.	Dec.
May.	\$423,455	\$648,202	\$224,746
Gross earn.			
Net earn.	\$93,705	\$258,790	\$165,085
Since Jan. 1.	\$1,964,292	\$2,589,369	\$625,076
Gross earn.			
Net earn.	\$562,928	\$914,486	\$351,557

	1894.	1893.	Dec.
May.	\$246,069	\$343,566	\$97,497
Gross earn.			
Net earn.	\$1,055	\$73,455	\$74,511
Since Jan. 1.	\$1,130,413	\$1,517,548	\$387,134
Gross earn.			
Net earn.	\$70,075	\$257,290	\$327,366

	1894.	1893.	Dec.
May.	\$236,613	\$356,671	\$120,058
Gross earn.			
Net earn.	\$53,799	\$61,017	\$7,218
Since Jan. 1.	1,002	1,002	
Mileage.			
Gross earn.	\$1,107,257	\$1,668,372	\$561,115
Net earn.	\$218,298	\$312,307	\$94,009

Waldosta Southern.—This road has been sold to J. M. Wilkinson, E. S. Moore, N. A. Williams, and T. G. Crawford. The road was surveyed from Madison, Fla., south to Dead Man's Bay, on the Gulf of Mexico, a distance of about 60 miles, and some grading done a few years ago.

Western New York & Pennsylvania.—The rails on the narrow gauge Kendall & Eldred branch, which has not been operated for some time, are now being taken up. This branch is about 18 miles long from Eldred east to Tarpot, Pa., near Kendall in McKean County, Pennsylvania.

Wheeling & Lake Erie.—The Executive Committee has voted not to pay any dividend on this stock for the quarter ending June 30. A dividend of two per cent. has already been declared during 1894, and four per cent. was declared in 1893, and 4½ per cent. in each of the two years before that. The company's business was greatly decreased by the bituminous coal miners' strike which affected all the Ohio coal roads during the two months it lasted and the railroad strike which is just over also affected the company's traffic seriously. The directors state that the next five months promise to be very prosperous and they believe will show the heaviest earnings in the history of the railroad. All the coal producers along the line have orders to the full capacity of their mines to supply the demand in the Northwest lake region where the coal supply is very low. The ore business also promises to be unusually large and agreements have already been made by the railroad to carry more than 50 per cent. of the whole of last season's tonnage.

Wisconsin Central.—In view of the default on July 1 in payment of interest on the first mortgage bonds of the Wisconsin Central Company, and the failure of the scheme proposed by the management to fund certain coupons upon these bonds, a Reorganization Committee, consisting of George Coppel, William L. Bull and Gerald L. Hoyt, of this city, and Rowland Hazard, of Providence, R. I., and Edwin H. Abbott, of Boston, has been appointed as the result of conferences between large holders of the various classes of securities of the company.

TRAFFIC.

Traffic Notes.

The boatmen on the Erie Canal held a meeting at Buffalo last week and agreed to take no grain at rates lower than the basis of 3½ cents a bushel on wheat to New York. Competition has been so sharp that rates have dropped below cost.

The rate of \$10 for steerage passengers from New York and Boston to English ports has proved too low and the applications for tickets are far in excess of the capacities of the boats. The Cunard line has raised the rate from \$10 to \$12.

The Atlantic & Danville Railroad has made a general reduction in wages. The locomotive engineers objected and called Mr. Arthur To Norfolk, and it is reported that he came to an amicable agreement with the receiver.

The Minnesota State Railroad Commissioners, in a decision in what is known as the Mankato coal rate case, have ordered the St. Paul & Duluth and the Minneapolis & St. Louis to reduce their joint tariff on coal from Duluth to Mankato from \$2.70 to \$2.40 per ton.

It is reported from St. Louis that there is shortage of freight cars on most of the roads west of that city. Many cars are detained in Chicago because of inability to unload them promptly and many others have been sent there with grain since the strike on account of the low rates offered by the boats on the lakes.

The railroads will not obey the orders of the Kansas board of railroad commissioners which direct the reduction of freight rates about 35 per cent. on all classes and commodities, and if the Board persists in attempting to force compliance a large amount of litigation will result. The roads claim that the sole purpose of the move is to make Populist capital for the Board, and express the conviction that they will be able to make such a showing before the courts as to secure the overruling of the order.

The Cincinnati New Orleans & Texas Pacific has complied with the order of the Interstate Commerce Commission, reducing freight rates from Cincinnati to various competitive Southern points. Judge Taft, presiding in

the court which appointed the receiver who now controls the road, says:

"The order of the commission reducing rates is respectable and must be respected. It is prima facie evidence binding on me. I will not issue an injunction restraining Receiver Felton, of the Queen and Crescent, from adopting the advanced rates August 1. I will personally see that he obeys the order of the commission."

The Louisville & Nashville intended to disobey the order, but if its chief competitor reduces the rates it will probably be obliged to take similar action.

The anthracite coal producers have agreed to restrict their production for the month of August to 2,500,000 tons, which is a million tons less than the July production. The Pennsylvania Railroad has notified coal shippers in the region of Altoona that the glut of coal at Eastern terminals necessitates the refusal by the road to take further shipments at present. At South Amboy, N. J., 3,000 loaded cars have accumulated and there are large numbers at other points. It is reported that two coal operators have procured the issue of mandamuses to compel the road to furnish coal cars, claiming that other shippers have been unjustly favored.

Chicago Traffic Matters.

CHICAGO, Aug. 1, 1894.

There is a continued improvement in both freight and passenger traffic, but it is necessarily slow. Reports from Kansas and Nebraska the past week have dashed the hopes of the officials of the corn carrying roads who were counting on a large tonnage. The failure of the corn crop, which now seems imminent, will prove a serious loss to many of the roads in view of the depressed situation generally.

There is little improvement in the lake traffic situation. There are indications of a considerable tonnage in soft coal westbound to replace the stocks in the northwest which have been largely depleted during the miners' strike. This will result, however, in a surplus of vessels at western ports and a consequent demoralization of all eastbound rates. Lumber rates are at \$1 from Bay City to Cleveland, and \$1.40 from Duluth to Toledo, low water mark at both ports.

Some of the passenger agents are figuring whether it will pay to make some low emigrant rates in connection with the prevailing low steetage rates. One passenger agent is quoted as favoring a \$5 rate from Chicago to New York when coupled with the sale of a steamship ticket.

The Chicago Freight Bureau has taken official action protesting against the amendments to the pooling bill which were incorporated after the conference of June 13.

The Western Passenger Association has determined to allow the Trans-Missouri committee of the association to slumber for the present, for lack of usefulness, and has accepted the resignation of the secretary.

The Chicago Freight Bureau is determined that the southern roads shall be compelled, if possible, to put into effect the rates recently ordered by the Interstate Commerce Commission, and to this end has resolved to institute legal proceedings if necessary. The members are depending on the Queen & Crescent to take the initiative in using the low rates.

The Alton has announced a series of excursions from points on its line to Chicago at very low rates.

A meeting of the lines members of the Chicago & Ohio River traffic association was held here last week at which it is said that it developed that there was considerable friction among the roads over the way affairs were working.

The commission men are kicking vigorously about the \$2 switching charge at the stockyards. The stockyards company has led them to believe that the roads were responsible for the charge and in consequence they sent a committee to the managers to protest on the ground that it was driving away business. Chairman Midgley has sent to the commission men a long letter in answer to their complaint, explaining that when the yards were built the stockyards company, as an inducement for business, constructed a system of tracks and tendered the railroads free switching of both loads and empties, which arrangement was in force until this spring, when, by the action of the stockyards company, this free switching was withdrawn and a scale of charges was imposed on the railroad companies, which they were unable to absorb owing to the small profit on this class of business, even if it had been right for them to do so. They therefore were forced by the arbitrary action of the stockyards company to add a switching charge to their billing. In reply to the complaint that the charge is out of proportion to the charge exacted by the stockyards company, chairman Midgley says that it was necessary to prevent misunderstandings that the charge be made uniform by all the roads and that the charge of \$2 decided upon is exceedingly low, as in addition to the payments by the railroad companies for trackage to the Union Stockyards and Transit Company, they assume the expense of operating their trains over the tracks in question.

The live stock receipts here are the largest ever known. On Monday they were: Hogs, 60,000; cattle, 25,000; sheep, 12,000, or a total of 97,000 head. The largest hog receipts ever known were 64,000, but there was never before 97,000 head of live stock recorded in one day. This extraordinary movement is attributed to the reported failure of the corn crop in Kansas on account of the hot winds. Farmers who had bought stock to be fed and fattened with corn this winter, finding that they would have no corn to feed the animals, are hurrying them forward.

The shipment of eastbound freight, not including live stock, for Chicago, by all the lines for the week ending July 28, amounted to 47,255 tons, against 29,146 tons during the preceding week, an increase of 18,109 tons and against 49,881 tons for the corresponding week last year. The proportions carried by each road were:

Roads.	W'k to July 28.		W'k to July 21.	
	Tons.	P. C.	Tons.	P. C.
Michigan Central.	5,275	11.2	3,945	13.8
Wabash.	1,478	3.1	674	2.3
Lake Shore & Mich. South.	7,020	14.8	5,241	18.0
Pitts., Ft. Wayne & Chicago.	6,742	14.3	4,217	14.5
Pitts., Cin., Chicago & St. L.	7,416	15.7	6,974	24.0
Baltimore & Ohio.	2,973	6.3	1,619	5.6
Chicago & Grand Trunk.	5,056	10.7	1,569	5.4
New York, Chic. & St. Louis.	5,327	11.3	2,182	7.4
Chicago & Erie.	4,735	10.0	2,284	7.8
C. C. C. & St. Louis.	1,232	2.6	440	1.5
Totals.	47,255	100.0	29,146	11,111.0

Of the above shipments 1,387 tons were flour, 14,322 tons grain and millstuff, 13,601 tons cured meats, 6,381 tons dried beef, 2,142 tons butter, 2,175 tons hides, and 4,824 tons lumber. The three Vanderbilt lines carried 37.3 per cent., the two Pennsylvania lines, 30.0 per cent.